

## **CHAPTER 2 Purpose and Need for Project**

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Caltrans and FHWA propose to build a new segment of U.S. 101 around Willits to improve safety and the efficiency of U.S. 101. The information presented below describes the reasons the project is being proposed and provides a history of the project. A copy of the 1995 Purpose and Need (P&N) statement is provided in Appendix G. Caltrans has updated the 1995 P&N statement with current data on traffic and safety conditions. The 1995 P&N statement has also been revised to a format that is more consistent with the Draft EIR/EIS.

The following P&N statement is critical for three primary reasons: because it justifies the proposed project even though it will result in environmental impacts; because it determines the range of alternatives that are being considered; and because it determines the selection of the preferred alternative. Interagency coordination for the proposed project strives to meet the purpose and need for the project while also considering the environmental constraints of meeting the need, such as Waters of the U.S., floodplains, endangered species, and historical properties. As part of the NEPA/404 Integration Process, a high priority is placed on avoidance of adverse impacts to waters of the U.S. (including wetlands). However, in meeting the agreed-upon purpose and need for this project, complete avoidance is not practicable, and minimization and mitigation will be achieved to the extent reasonable and practicable.

The following discussion of purpose and need is consistent with the 1995 NEPA/404 P&N statement agreed upon by participating members of the NEPA/404 Integration Process for this project (see Appendix G for explanation of NEPA/404 Integration Process). This interagency agreement on purpose and need is instrumental for facilitating interagency input and concurrence on the range of alternatives, selection of the preferred alternative, and issuance of mandatory permits/approvals, without which the project could not be constructed.

For a description of alternatives being considered, see Chapter 3.

### **2.1 Purpose of Proposed Bypass Project**

Recognizing the importance of U.S. 101 for the interregional movement of people and goods, Caltrans and FHWA propose to construct a new segment of U.S. 101 that

would bypass Willits in Mendocino County. Caltrans and FHWA propose this bypass project to reduce delays, improve safety and achieve a level of service (LOS) of at least “C” for interregional traffic on U.S. 101 within the vicinity of Willits, through the 20-year design period (i.e., 2028). Table 2-1 defines LOS as it applies to freeways.

**Table 2-1. Freeway Level of Service (LOS) Criteria**

A	B	C	D	F
<b>A</b>	Highest quality of service. Free traffic flow, low volume and densities. Little or no restriction on maneuverability or speed. 105+ kph (65+ mph). No delay.			
<b>B</b>	Stable traffic flow, speed becoming slightly restricted. Low restriction on maneuverability. 105 kph (65 mph). No delay.			
<b>C</b>	Stable traffic flow, but less freedom to select speed, change lanes or pass. Density increasing. 104 kph (64.5 mph). Minimal delay.			
<b>D</b>	Speeds tolerable but subject to sudden and considerable variation. 100 kph (62 mph). Minimal delay.			
<b>E</b>	Unstable traffic flow with rapidly fluctuating speeds and flow rates. Short headway's, low maneuverability and low driver comfort 84 kph (52 mph). Considerable delay.			
<b>F</b>	Stop and go traffic. Speed and flow vary. Considerable delay.			

## 2.2 Need for Proposed Bypass Project

U.S. 101 is an important route for interstate and interregional travel and is considered the economic lifeline of California's North Coast. It is the principal arterial route for people and goods between the San Francisco Bay Area and the greater Eureka-Arcata area. Travel times and the costs of transporting goods to and from the communities along U.S. 101 are high. Travel times and transportation costs are exacerbated by congestion-related delays and delays caused by facility type at Willits where U.S. 101 passes through developed areas on surface streets.

Because U.S. 101 also serves as Main Street in Willits and is the only continuous north/south street traversing the city, U.S. 101 must accommodate nearly all local traffic traversing Willits as well as all interregional traffic intending to pass through. Traffic congestion has been a concern in Willits for a number of years, and it is becoming more prevalent as traffic volume increases. The proposed project is needed to respond to a number of deficiencies that exist on the current facility. These problems are discussed below in Sections 2.2.1, Existing Facility, through 2.2.6, Conditions for Bicyclists and Pedestrians.

### **2.2.1 Existing Facility**

U.S. 101 traverses the states of Washington, Oregon, and California; it is the major north/south route connecting southern and central California with the communities along California's north coast and Oregon's southern and central coasts. U.S. 101 is on the California Freeway and Expressway System and in the National Highway System. This section of U.S. 101 is important for commerce and goods movement. U.S. 101 is designated for large interstate trucks and oversized permit loads, both of which are accommodated on this section of the route. U.S. 101 is part of the Strategic Highway Network.

The project study area extends from about 3.2 km (2.0 miles) south of Willits, where the existing four-lane freeway becomes a two-lane highway, to about 7.7 km (4.8 miles) north of the Willits city limits at Oil Well Hill, where it is a two-lane facility (Figure S-1).

South of the project study area, U.S. 101 is a four-lane freeway/expressway to approximately 2.7 km (1.7 mi) south of Willits where it becomes a two-lane highway. The two-lane highway serves a sparsely developed area before it increases to four lanes with a two-way left turn lane just north of the intersection with Baechtel Road, where commercial development intensifies. The four-lanes with a two-way left turn lane segment extends about one mile (called "the miracle mile") to about Hazel Street where one of the northbound lanes ends. North of S.R. 20, through the older downtown portion of Willits, U.S. 101 reduces further to two lanes with a two-way left turn lane until just beyond Willits High School. From Willits High School north to Reynolds Highway, U.S. 101 traverses rural lands as a two-lane highway. From Reynolds Highway north over Oil Well Hill, the two lane-lane highway is augmented with truck climbing lanes. The truck climbing lane northbound is about 1.5 km (0.9

mi) long and extends from about Reynolds Highway to the summit, while the southbound truck climbing lane runs from the summit to about 0.7 km (0.4 mi) north.

U.S. 101 is the only continuous north-south roadway through Willits; therefore, both interregional and local traffic must share the facility. The reduction of one northbound lane south of the S.R. 20/U.S. 101 intersection creates a bottleneck for northbound travelers approaching the intersection and is a significant source of congestion. Northbound traffic often queues-up south to Holly Street or beyond during peak-hour periods. Side street access at Holly Street is expected to improve with construction of a Holly Street signal in the near future, but it will not reduce overall delay. Traffic congestion in Willits will worsen as traffic volumes increase. Side street traffic, commercial driveways, street parking and pedestrian traffic conflict with interregional through traffic and will contribute to congestion in Willits.

The U.S. 101 right of way through Willits is relatively narrow. Widening the existing facility is not practicable, as much of the commercial development would need to be removed to make room for the widened highway.

**Figure 2-1. Existing U.S. 101 in Willits**



A long queue of commercial trucks and automobiles crawls through Willits, while bicyclists and pedestrians wait for an opportunity to safely cross congested U.S. 101, which also serves as Willits' Main Street.

Long queues of cars following concentrations of heavy commercial vehicles create slow, stop-and-go travel through Willits. Congestion is especially bad during the tourist season, with heavy southbound recreational traffic often backing up to Oil Well Hill, north of the S.R.20/U.S.101 intersection. The congestion results in increased travel time for motorists and delayed response time for emergency vehicles. While interregional traffic is delayed substantially, local residents have become increasingly frustrated with the time required to make local trips. These conditions are discussed in detail below.

### **2.2.2 Level of Service for Interregional Traffic**

Recognizing the importance of U.S. 101 for the interregional movement of people and goods, Caltrans has established a concept LOS “C” for the route in the Route Concept Report. The Regional Transportation Plan adopted by the Mendocino Council of Governments (MCOG) recommends that new facilities provide a LOS of at least “C” through the year 2010. The Caltrans Route Concept Report (RCR) for U.S. 101, north from San Francisco to the Oregon border, calls for the ultimate construction of a four-lane freeway or expressway<sup>3</sup> to minimize congestion and delays, and to improve traffic safety. Achieving this concept would require additional bypasses of several communities such as Hopland, Laytonville, Eureka and Crescent City. A project to bypass Hopland is in the early environmental study process.

Travel times and the costs of transporting goods to and from the communities along U.S. 101 are high. Travel times and transportation costs are exacerbated by congestion-related delays in Willits and other locations where U.S. 101 passes through developed areas on surface streets. When traffic volumes were lower, many more communities north of San Francisco had U.S. 101 passing through the middle of town on surface streets. Over time, most of those communities, including the cities of Novato, San Rafael, Petaluma, Santa Rosa, Cloverdale, Ukiah, Rio Dell, Fortuna, Arcata, and the communities of McKinleyville and Garberville have been bypassed or

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<sup>3</sup> In November 1994, the RCR was revised to a lower concept for two segments between Eureka and Crescent City reflecting constraints imposed by the proximity of state and national park lands and the presence of protected species. The concept LOS for U.S. 101 at Willits was changed during that revision from “B” to “C.”

had access-controlled freeways built through them. Willits is the only incorporated city between San Francisco and Eureka, a distance of 435 km (270 mi) that continues to have U.S. 101 traversing the city on surface streets.

One of the factors contributing to the high travel times through the Willits area is the facility type. Because the roadway is a conventional highway through town, speeds on the facility are relatively low. The posted speed limits range from 55 mph at the ends of the study area to 25 mph within portions of the city. Free flow travel time at the posted speed limits, assuming no delays for traffic signals, is just over 12 minutes.

Considerable friction associated with commercial driveways, side streets, parking and pedestrian traffic contributes further to decreased average speeds through Willits. Average speeds within the city are 16 mph (Baechtel Road to Sherwood Road) with average speeds of 30 mph for the full length of the study area. Slow average speeds delay interregional traffic travel substantially.

Table 2-2 shows travel times on U. S. 101 through the project limits from 0.9 km (0.6 mi.) south of the Haehl Overhead to 1.6 km (1.0 mi.) north of Reynolds Highway for the 1998, 2008, and 2028 No-Build as well as build alternatives.

**Table 2-2. Travel Time on U.S. 101 (KP 69.4/84.2) for Interregional Traffic**

Alternative	1998 Peak Hour (Minutes)	2008 Const. Year Peak Hour (Minutes)	2028 20 years After Construction Peak Hour (Minutes)
No-Build	18.3	23.9	32.3
Freeway Alternatives C1T, E3, J1T, LT	N/A	9.1-9.4	9.2-9.6

Source: Traffic Study for the Willits Bypass, Caltrans, 1999

N/A – not applicable

The travel times listed in Table 2-2 are for peak hour traffic, and comparing the free flow travel time of 12.1 minutes to the peak hour time of 18.3 minutes, one can see that congestion at peak hour currently increases travel time about 50 percent. In addition, travel times are expected to increase dramatically under the No Build Alternative. By 2008, travel times would almost double in comparison with free flow. And by 2028, would be more than 2.5 times as high as free flow times.



For motorists in the stream of traffic, this means considerable delay and frustration. Simple trips for shopping, transporting children to and from school functions, commercial deliveries, and interregional pleasure and business travel all are delayed by the times indicated. Traffic collisions increase these delays, and at these times, emergency vehicles are delayed even further in getting assistance to victims.

These slower average speeds reflected in the no-build scenarios above impact interregional and interstate traffic as well as regional traffic. The considerable delays imposed on interregional and interstate traffic passing through Willits, and other communities not yet bypassed, cumulatively impede the ability to effectively move people and goods on U.S. 101.

### **2.2.3 Safety Concerns**

Within the project limits, U.S. 101 has several different facility types with a variety of roadbed widths, lane configurations and numerous at-grade intersections. Non-standard widths, lack of traffic separation, congestion and numerous conflicting traffic movements due to turns and cross-traffic, contribute to a collision rate of 1.40 collisions per million vehicle kilometers that exceeds the statewide average of 1.10 collision per million vehicle kilometers travel for similar facilities. The statewide average for a rural four-lane freeway with the same Average Daily Traffic (ADT) is 0.31 collisions per million vehicle kilometers traveled.

There were a total of 469 collisions on U.S. 101 between June 1995 and May 2000 in the project area. Of the 469 collisions reported, 3 resulted in fatalities, 141 resulted in injuries, and the remainder resulted solely in property damage. The existing total, injury, and fatality collision rates are 4.5, 3.0, and 1.5 times higher than the statewide average total, injury, and fatality rates, respectively, compared to a rural four-lane facility with the same ADT.

Interregional commercial vehicles must use U.S. 101 through Willits and pass high-density residential areas, schools and businesses. Interregional trucks carrying hazardous materials must also travel through Willits posing further risk to the community.

#### **2.2.4 Interregional Truck Traffic Interferes with Local Travel**

Trucks are an important component of U.S. 101 traffic. Truck traffic on U.S. 101 in the Willits area ranges from approximately 10 percent of the traffic volume south of S.R. 20 to approximately 5 percent of the traffic volume north of S.R. 20. Average daily truck traffic volumes exceed 1,000 south of the U.S. 101 intersection with S.R. 20. Trucks have a lower operating capability than passenger cars, particularly with respect to acceleration and deceleration. Trucks often slow the average speed of traffic by creating platoons of following vehicles, in effect slowing the average speed of the entire platoon. As stated above, many interregional commercial vehicles carry hazardous materials through Willits, passing businesses, high-density residential areas, and schools.

#### **2.2.5 Noise and Vibration**

The interregional automobile and truck traffic described above generates noise and vibration along existing U.S. 101 in Willits. By removing a large percentage of interregional traffic from the more densely developed areas, a bypass would reduce the amount of noise and vibration experienced by nearby homes, businesses, schools and other community facilities.

#### **2.2.6 Conditions for Bicyclists and Pedestrians**

Various roadway conditions throughout the length of the existing highway present difficulties for bicyclists and pedestrians. In particular, these issues make access within Willits difficult for less automobile-oriented groups such as children, the disabled, and the elderly.

In the five-lane section between Baechtel Road and just south of the California Western Railroad crossing, there are wide roadways and few marked crosswalks. The difficulties in crossing the four lanes of through traffic are compounded by traffic using the two-way left-turn lane. Conflicts between bicyclists and automobiles can arise when on-street parking is permitted, especially when coupled with narrow shoulders, which occurs between S.R. 20 and Commercial Street. North of Commercial Street, restaurants and convenience stores attract students from the high school across the highway. The pedestrian crossings exacerbate the congestion of turning movements across the highway. Offset intersections and driveways contribute to the general congestion on the route. The multiple driveways separated



by short lengths of curb and sidewalk add to the conflicting movements that make non-motorized travel more difficult.

Although no improvements to the existing facility are contemplated under any of the build alternatives, removing the substantial numbers of automobiles and large trucks with interregional origins and destinations is expected to improve conditions for both bicyclists and pedestrians along the existing highway.

### **2.3 Objectives of the Proposed Action**

The objectives of the proposed project are to improve level of service, improve safety, and reduce delays for interregional traffic:

- Improve level of service (to LOS “C” on the newly constructed segments) for interregional traffic by decreasing congestion and delays on U.S. 101.
- Improve traffic safety on U.S. 101.
- Reduce delays for interregional traffic by separating interregional traffic from downtown traffic.

As a by-product of the proposed project, the following benefits would occur:

- Improved traffic safety on Main Street in Willits.
- Reduced noise and vibration experienced by nearby homes, businesses, schools and other community facilities in Willits due to interregional commercial truck and other through traffic. Removing the constant stream of U.S. 101 interregional truck traffic from Main Street will enhance the local community aspects of Willits.
- Improved conditions for bicyclists and pedestrians, and for less mobile groups such as the young, disabled and elderly. Removing interregional traffic from the City of Willits will improve the existing conditions for bicyclists and pedestrians, provide new opportunities for non-motorized circulation improvements, and enhance the friendly small town character of Willits.
- Improved conditions for local residents who use Main Street for routine trips to work places, shops, and schools. Removal of interregional traffic from Main Street will reduce congestion for local traffic.

## **2.4 History of Planning and Scoping Process**

This section describes the history of the Willits Bypass project and the various alternatives that have been studied over the years. Several of the alternatives were eliminated during the scoping process. A description of the discarded alternatives is included in Chapter 3.6 Alternatives Considered but Eliminated from Further Study.

### **2.4.1 Pre-1987 History**

The proposed Willits Bypass project dates back as far as the early 1960s. In 1962, the Director of District 1 of the California Division of Highways (later to become Caltrans) approved a project report recommending construction of a four-lane bypass within the current project limits. In 1963, the California Highway Commission (later to become the California Transportation Commission or CTC) adopted a route bypassing Willits to the east. The alignment would later be known as Alternative A.

In 1969, the Division of Highways improved U.S. 101 by constructing a segment of freeway south of Willits. That project placed excess excavated material as embankment in the southern end of the Little Lake Valley for a future freeway project envisioned to be constructed northward on the adopted route. Funding shortfalls and a lack of local support at that time halted further development of the bypass until 1987 when District 1 began the current project development effort.

### **2.4.2 Post-1987 History**

In 1987, the CTC directed Caltrans to re-evaluate the adopted route (Alternative A) along with other alternatives. In 1988, the Chief of the Office of Project Planning and Design (OPPD) approved a Project Study Report (PSR) investigating the feasibility of constructing a four-lane freeway bypass. The PSR examined six alternatives (including the No Build). The current project alignments are much different from those examined in the PSR. In the letter approving the PSR, OPPD stated, “the District is authorized to complete environmental studies leading to a route adoption.”

Caltrans established a Project Development Team (PDT) to guide the project and two Technical Advisory Groups (TAGs) to disseminate information to and collect input from interested parties. (The two TAGs were later merged into the current single group.)

District 1 held a scoping session in 1989 with resource agencies and the public to determine issues of concern and to solicit ideas on the range of alternatives. As a result of the meetings, the PDT added Alternatives F through R to the six listed in the PSR. In 1990 several important steps occurred. The PDT narrowed the alternatives still under consideration to Alternatives A, C, E, J, K, O, and the No Build Alternative. In addition, the CTC programmed \$1.1 million for right of way for the Willits Bypass.

In 1992, CTC staff requested Caltrans to estimate construction costs for a two-lane expressway in lieu of a four-lane freeway. CTC made this request due to limited funding for new projects. In the 1992 State Transportation Improvement Plan (STIP), the CTC programmed the Willits Bypass project for \$60.5 million construction and a total of \$9 million for right of way to construct a two-lane expressway within right of way for the ultimate four lanes. After further study, Caltrans staff determined that a two-lane bypass would not achieve a level of service (LOS) C, accommodate future traffic growth, and improve safety as well as a four-lane freeway.

Also in 1992, several other alternatives were investigated as a result of community input. These alternatives used Transportation System Management (TSM) concepts to seek ways to use the existing facilities in lieu of an entirely new route. Concepts that were investigated included improving intersections, introducing a couplet, and widening existing U.S. 101 to four lanes by restricting on street parking. These concepts evolved into the TSM Alternative.

In early 1993, the PDT dropped five alternatives including Alternative O. Later that year, the United States Environmental Protection Agency (USEPA) suggested study of Alternative K2 (intended to be a wetland avoidance alternative), while Willits suggested study of Alternative L.

In 1994, Caltrans initiated the NEPA/404 Integration process for this project with the ACOE, NMFS, USEPA, and USFWS, and the California Department of Fish and Game (DFG) (see Appendix G for an explanation of the NEPA/404 Memorandum of Understanding). By early 1995, pursuant to the NEPA/404 Integration Process, Caltrans, FHWA, and the participating agencies agreed to the Purpose and Need Statement for the project, and concurred with the modal choice statement, the criteria for comparisons, and the range of alternatives to be studied.

Engineering and environmental studies continued on several alternatives through 1994. The need to redirect resources to complete seismic safety projects and storm damage restoration projects, as a result of the 1995 storms, caused project efforts to be suspended until 1998. In 1998, with new funding and resources allocated, studies resumed on the alternatives approved by the NEPA/404 agencies. The 1998 STIP supplemented earlier funding and programmed the project for approximately \$117 million. The project is included in the current 2002 STIP for approximately \$116 million. The Mendocino Council of Governments (MCOG) programmed its entire \$17.3 million share of Regional Improvement Program funds to indicate strong local support for the project.

Between 1963 and today, many alternatives were evaluated and eliminated from further analysis. Chapter 3 provides a discussion of the alternatives withdrawn from further consideration and the reasons for their elimination.

This Draft EIR/EIS represents the current status of the project and project alternatives. This document will lead to the selection of a preferred alternative. Caltrans and FHWA will prepare a Final Environmental Impact Report/Final Environmental Impact Statement (FEIR/EIS) for the preferred alternative. Selection and approval of the preferred alternative would lead to approvals for final design, permits and a construction project unless the No-Build Alternative is selected, in which case, Caltrans and FHWA will prepare a report dropping the project, and a freeway bypass will not be built.

## **2.5 Funding and Schedule**

The Willits Bypass project has been programmed for \$116 million in the 2002 STIP. Additional state and regional funds will be the source of the balance of funds needed to construct the project.

Estimated capital costs required for each build alternative under consideration are: Alternative C1T - \$128 million; Alternative E3 - \$301 million; Alternative J1T - \$151 million; and Alternative LT - \$130 million, broken down as follows:

**Table 2-3. Estimated Project Cost**

Total Capital Cost Rounded (in \$1,000,000's)				
	Alt. C1T	Alt. E3	Alt. J1T	Alt. LT
North:	\$65	\$208	\$93	\$67
South:	\$43	\$93	\$38	\$38
Borrow:	\$19	-0-	\$20	\$25
Total:	\$128	\$301	\$151	\$130

Currently, the project is scheduled to be advertised in fall of 2005 with a contractor selected and a construction contract awarded in winter of 2005. Physical work would begin in early 2006. The valley alternatives would require three full seasons, so construction would be completed late in 2008 or 2009. Alternative E3 would require five years of construction time, so project completion would not be until 2010 or 2011.

## 2.6 Support For The Project

A four-lane freeway bypass of Willits is formally supported by:

- Willits City Council
- Mendocino County Board of Supervisors
- Mendocino Council of Governments
- North Coastal Counties Supervisors Association, which represents the eight northwestern counties in California
- California Transportation Commission

The Willits City Council has formally endorsed a combination of Alternatives LT and C1T (L/C route), with Alternative L1T on the south and Alternative C1T at the north. The city has reserved land to the east of a new industrial park specifically for the bypass. The Brooktrails Township Community Services District Board of Directors has formally supported a two-lane alternative on the same L/C route.

The following organizations support other alternatives:

- Save All the Valley Eternally (SAVE) the Northwestern Pacific Railroad Support Coalition (Bayside), and the Mendocino County Railway Society (Fort Bragg) support a two-lane TSM alternative that includes freight and passenger rail service.
- The Willits Environmental Center (WEC) supports a two-lane alternative for one of the valley alternatives (C1T, J1T, or LT).
- The Mendocino County Agricultural Commissioner expressed his opposition to any alternative that would impact prime farmland.

Final selection of an alternative will not be made until after the full evaluation of environmental impacts, full consideration of public hearing comments, and approval of the Final EIR/EIS.

# CHAPTER 3 Description of the Proposed Action and its Alternatives

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## 3.1 Introduction

This chapter discusses the proposed action, alternatives under consideration, alternatives that have been eliminated, and the construction process that would be employed if any of the build alternatives were selected.

The proposed action is to construct a new segment of U.S. 101 that would bypass Willits in Mendocino County. Four build alternatives are being proposed to implement the project – C1T<sup>4</sup>, J1T, E3, and LT (Map 3). These alternatives would construct a four-lane freeway, with Alternatives C1T, J1T, and LT crossing the Little Lake Valley east of Willits, and Alternative E3 traversing the hills west of Willits.

In addition, a No-Build Alternative is being considered. Under the No-Build scenario, no improvements to the existing roadways would be constructed, though traffic volumes would increase. Traffic would continue to travel on existing U.S. 101, the same facilities motorists now use. The No-Build Alternative allows reviewers of the Draft EIR/EIS to compare the effects of the build alternatives with a future scenario in which a bypass would not be constructed.

The selection of alternatives for evaluation was based on several factors, including benefits, capital cost, technical feasibility, geographic location, and public response. The four build alternatives presented here, along with the No-Build Alternative, are analyzed at an equal level of detail in this Draft EIR/EIS as required by NEPA.

## 3.2 Evaluating Alternatives by Segment

As described in Section 1.5, Nodal Analysis, Caltrans evaluated each alternative, as appropriate, by segments. The build alternatives have each been divided into two parts (Map 3).

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<sup>4</sup> Alternatives C1 Truncated (C1T), J1T, and LT were shortened to conform to the existing highway at the north end of the project area to reduce the costs of former Alternatives C1, J1, and L.



As explained in Section 1.5, the text and tables in this document, for the most part, display data in a manner that allows environmental impacts of each segment to be evaluated separately. For some environmental issues, however, analysis by segment was not possible or prudent; for example, certain biological resources or community issues do not lend themselves to an effective segmental analysis.

Readers are encouraged to indicate alternative preference in their comments on the Draft EIR/EIS (Section 1.7) and identify their reasons for recommending a particular alternative or hybrid alternative.

### **3.3 Common Features of Alternatives C1T, E3, J1T, and LT**

This section discusses the common features of Alternatives C1T, E3, J1T and LT . The dimensions listed in the following discussions are typical; during final design there may be some variance from them.

Alternatives C1T, E3, J1T and LT would be constructed with four lanes; two in each direction, with full access control bypassing Willits. Each lane would be 3.6 m (12 ft) wide. A 13.8 m (45.3 ft) median would separate the northbound and southbound lanes. Inside shoulder width would be 1.5 m (5 ft) (nearest the median) and 3.0 m (10 ft) on the outside shoulder. Cut slopes generally would vary between a 1:1 (vertical:horizontal) and a 1:2 ratio. Fill slopes generally would vary between a 1:2 and 1:4 ratio. The plans would call for slope rounding at appropriate locations. Figures 3-1 through 3-3 show Typical Cross Sections for the build alternatives.

Interchange ramps would have a single lane. Where local roads are improved or constructed, they would be two lanes or two lanes with a left-turn pocket, and would have generally 2.4 m (8 ft) shoulders. Private access roads would generally have two 3.6 m (12 ft) lanes and may be either paved or unpaved (Maps 25-28).

The freeway sections of the alternatives would maintain a minimum design speed of 110 kilometers per hour (kph) (68 mph), except at the end of Alternative E3 where the design speed would be 100 kph (62 mph). Each of the build alternatives would meet the purpose of providing at least LOS C. Each build alternative would carry the predicted average annual daily traffic (AADT) in 2028 at LOS C or better.

**Figure 3-1. Typical Cross-Sections: Freeway Mainline**

**Figure 3-2. Typical Cross-Sections: Side Slopes**

**Figure 3-3. Typical Cross-section: Ramps, Local Roads, and Private Access Roads**

### **3.3.1 Design Exceptions**

#### **3.3.1.1 Revised Truck Scales Interchange (Alternative C1T)**

In April of 2002, the Willits project design team developed revisions to the originally proposed Truck Scales Interchange for Alternative C1T. The original Truck Scales Interchange is shown on Map 25b in Volume 2. These revisions were made in response to critiques of the original proposal, as a result of Caltrans design exception approval process. The following interchange design changes are proposed: shift the mainline alignment easterly at the farthest point approximately 85 m (280 ft), change the interchange type to a diamond, and lengthen the connection to existing U.S. 101 at the north end by approximately 430 m (1400 ft) to complete the lane reduction. The revised interchange is shown on Map 25b(2) in Volume 2. Caltrans Headquarters and FHWA have approved the modified interchange concept proposed by the Caltrans Design team. The revised interchange improves operation and motorist safety. See Appendix Q for more information regarding the revised interchange.

#### **3.3.1.2 Median**

The median separates opposing lanes of traffic and provides a clear recovery zone for errant vehicles. The median also provides a refuge area in emergency situations and reduces headlight glare. During the early stages of the development of the alternatives, the standard minimum median width for rural freeways was 46 feet. The current Caltrans design standard for minimum median width is 18.6 m (61.0 ft). As part of its effort to lower environmental impacts of the project, Caltrans retained the old standard, which when adapted to metric units is 13.8 m (45.3 ft). Caltrans policy requires a design exception approval for the proposed median.

#### **3.3.1.3 Off-ramp**

In addition, the 1100 m (3600 ft) northbound off ramp at the Upper Haehl Creek Interchange for Alternatives C1T, J1T, and LT would exceed the advisory standard for maximum length of a single lane ramp, and a design exception would be required. Otherwise, these alternatives would meet all design standards.

### **3.3.2 Estimated Cut and Fill Requirements – Designated Borrow Site**

Alternative E3 would not require additional fill material. However, Alternatives C1T, J1T, and LT would be constructed largely on embankment and would require material

from elsewhere. The estimated fill requirements for the valley alternatives are estimated as follows:

- Alternative C1T: 1.8 million cubic meters (2.4 million cubic yards)
- Alternative J1T: 1.9 million cubic meters (2.5 million cubic yards)
- Alternative LT: 2.4 million cubic meters (3.1 million cubic yards)

The construction contractor would determine the specific source of material for earthwork; however, Caltrans has designated a borrow site in the project area as a possible source of material that the contractor may use for the project.

Caltrans has identified the Oil Well Hill area as the designated borrow site. The material in this area is of good quality and suitable for use in embankment construction. The right of way for U.S. 101 at the designated borrow site is wide enough to provide the necessary material for earthwork. The designated borrow site could be used for any of the valley alternatives, although the quantity excavated would depend on the amount needed for each alternative. In general, the area excavated would be similar for all three alternatives. Maps 25-28 in the Environmental Atlas (Volume 2) show locations of cut and fill areas.

Because the designated borrow site is a possible choice for obtaining material, it is included in this environmental review. The Surface Mining and Reclamation Act (SMARA) of 1975 is administered by the California Department of Conservation, Office of Mine Reclamation. Pursuant to SMARA, a permit application, a Reclamation Plan, and financial assurance are required before conducting surface mining operations. Mendocino County has the approval authority for the Reclamation Plan.

Contractors may choose to use their own selected sites when advantageous to them (e.g., savings in time or money). However, if the contractor selects an alternative borrow site(s) for this project, a separate environmental review for the contractor's site(s) would be required before the contractor obtains permits and begins construction. The contractor would be responsible for performing and bearing the cost of the environmental review and of obtaining permits if the contractor chooses a different site. One drawback to an alternative borrow site would be potential project delay caused by the additional environmental review and permit processes. No disposal sites would be required for this project.

### **3.3.3 Relinquishment of Bypassed Portions of Existing U.S. 101**

According to Section 27 of the California Streets and Highway Code, the State of California shall relinquish to any county or city any portion of any state highway within the county or city that has been removed from the state highway system. This also applies to portions of the state highway system that have been bypassed. Relinquishments are made by a resolution of the CTC.

After construction of the proposed project, bypassed portions of U.S. 101 would be relinquished to the City of Willits and Mendocino County. Those portions of U.S. 101 located in unincorporated portions of Mendocino County would be relinquished to Mendocino County, and those portions located in the City of Willits would be relinquished to the City of Willits. Coordination with Mendocino County and the City of Willits will result in the execution of a Freeway Agreement signed by all jurisdictions involved and will provide the basis for the relinquishment action later taken by the CTC.

For Alternative E3, the portion of U.S. 101 between the Hollands Lane interchange and the point at which the bypass route intersects with existing U.S. 101 would be relinquished to the city and county (Map 5). Additionally, this route would provide a connection between U.S. 101 and S.R. 20. As a result, the portion of existing S.R. 20 located between the existing U.S. 101 / S.R. 20 intersection and the proposed U.S. 101 / S.R. 20 interchange would be relinquished to the city and county.

Alternatives C1T, J1T, and LT would not include the relinquishment of S.R. 20, since these alternatives would not provide a new connection between U.S. 101 and S.R. 20 west of the City of Willits. As a result, the portion of the route that is currently both U.S. 101 and S.R. 20 would not be relinquished. This portion of the roadway would be designated S.R. 20.

Alternative C1T would include the relinquishment of existing U.S. 101 to the city and county between the proposed Upper Haehl Creek and Truck Scales interchanges (Map 4). Alternatives J1T and LT would include the relinquishment of existing U.S. 101 to the city and county between the proposed Upper Haehl Creek and Quail Meadows interchanges (Maps 6 and 7).

According to the California Streets and Highways Code, the State of California cannot “relinquish to any county or city any portion of any state highway that has



been superseded by relocation until the department has placed the highway ... in a state of good repair.” This includes maintenance such as litter removal, weed control, and tree and shrub trimming, up to the time of relinquishment.

Caltrans will seek to reach an agreement with Mendocino County and the City of Willits as to what constitutes a “state of good repair” prior to the start of construction. The Streets and Highways Code use of the word “highway” includes bridges, culverts, curbs, drains and all works incidental to highway construction, improvement, and maintenance. The process of presenting the highway in a state of good repair cannot include such work as roadway widening, new construction, or major reconstruction. It may include preventive maintenance, such as sealing asphalt concrete surfaces.

### **3.4 Description of Alternatives Under Consideration**

This section describes the distinguishing features of each alternative. The three truncated valley alternatives are modifications of the original center valley Alternatives C1, J1, and L. The original alternatives traversed the entire Little Lake Valley and rejoined U.S. 101 just north of Willits. The decision to truncate or shorten these alignments was driven by the need to design a project within existing budget constraints. The technical studies prepared for this project have fully analyzed the potential impacts of the original alignments of Alternatives C1, J1, L and TSM, as well as the impacts of the truncated versions. These technical studies are available at the Caltrans Eureka Office and the Willits library. See Section 1.9 for addresses to these facilities.

In the individual alternative descriptions that follow, each alternative is described in relation to existing U.S. 101, S.R. 20, and local roads. If a build alternative is selected, portions of U.S. 101 and S.R. 20 will be relinquished to either Mendocino County or the City of Willits. Relinquishment is discussed in Section 3.3.3.

Table 3-1 presents the engineering features for each alternative, including total length, estimated fill requirements, and estimated capital costs.

**Table 3-1. Alternatives Summary**

Features	C1T	E3	J1T	LT
Length of freeway in km (mi)	10.6 (6.6)	14.8 (9.2)	9.0 (5.6)	9.3 (5.8)
Right of Way ha (ac)*	112 (277)	353 (872)	250 (617)	189 (466)
# of Interchanges	2	3	2	2
# of Lanes	4			
Earthwork borrow requirements Cubic meters (cubic yards)*	1.8 million (2.4 million)	--	1.9 million (2.5 million)	2.4 million (3.1 million)
Roadway Excavation Cubic meters (cubic yards)*	-0-	12 million (16 million)	-0-	-0-
Median m (ft)*	13.8 (45.3)			
Design Speed km/h (mph)	110 (68)			
Total Capital Cost Rounded (in \$1,000,000's)*				
North:	\$65	\$208	\$93	\$67
South:	\$43	\$93	\$38	\$38
Borrow:	\$19	-0-	\$20	\$25
Total:	\$128	\$301	\$151	\$130

Source: Caltrans, Design Engineering, May 2001

\*Estimated

### 3.4.1 Alternative C1T

Volume II, Atlas Map 4 depicts the alignment and structures for Alternative C1T.

**Alignment Description:** Alternative C1T would begin approximately 0.9 km (0.6 mi) south of the proposed Haehl Overhead and would end approximately 1.4 km (0.9 mi) south of Reynolds Highway. The overall length of this alternative would be approximately 10.6 km (6.6 mi). The estimated cost for Alternative C1T is \$128 million.

**South Segment:** Alternative C1T would diverge from existing U.S. 101 at the proposed Upper Haehl Creek Interchange and head northwesterly on the existing embankment constructed with excess fill material from a previous highway project. The alignment would run along the east side of the Northwestern Pacific Railroad tracks, turning northeasterly as it passed west of Little Lake Cemetery. The alignment would cross Center Valley and Hearst-Willits Roads east of Bray Road, then turn northwesterly, skirting the Willits wastewater treatment plant. The

alignment then would cross Outlet and Mill Creeks, which is the approximate location of the node that separates the north and south segments of this alternative.

**North Segment:** The alignment would turn north along the east side of the Northwestern Pacific Railroad tracks. Near the railroad crossing with existing U.S. 101, Alternative C1T would begin paralleling the existing highway. The proposed Truck Scales Interchange would provide an access point along a northeasterly reach of the existing highway. Just north of the interchange near the existing lumber mill, the four-lane alternative would conform to the existing two-lane section of U.S. 101.

**Engineering Features:** The vertical alignment of Alternative C1T would begin with a gentle downgrade and head northwesterly from the existing freeway section to approximately East Hill Road. Between East Hill Road and Outlet Creek, the profile grade would be nearly flat except at bridge approaches and departures.

Throughout the valley, Alternative C1T would cross the 100-year floodplain, but the roadway elevation would remain at least 1 m (3 ft) above the estimated 100-year water surface level. Alternative C1T would provide two interchanges that direct motorists to Willits and Fort Bragg. The Upper Haehl Creek Interchange would be located at the south terminus of the project. The northbound exit ramp would connect with existing U.S. 101, which would become S.R. 20 at this location. A second interchange called the Truck Scales Interchange would be located approximately 8.5 km (5.3 mi) north of the Upper Haehl Creek Interchange. For the Truck Scales Interchange, the ramps would terminate at existing U.S. 101, which would become a local road in this area.

South of the Truck Scales Interchange, the existing highway would serve as a local road, providing access to Willits from the interchange. The roadway would retain the existing at-grade crossing with the Northwestern Pacific Railroad.

**Structures:** The C1T alignment would include seven mainline structures and two ramp structures. The Floodway Viaduct would span the Little Lake Valley floodway at Outlet and Mill Creeks near the city's wastewater treatment plant so that floodwaters would not increase significantly due to the freeway. Bridges also would be constructed at Upper Haehl, and Mill Creeks.

### 3.4.2 Alternative E3

Volume II, Atlas Map 5 depicts the alignment and structures for Alternative E3.

**Alignment Description:** Construction of Alternative E3 would begin approximately 0.9 km (0.6 mi) south of the Haehl Overhead and end approximately 1.6 km (1.0 mi) north of Reynolds Highway at Oil Well Hill. The overall length of this alternative would be approximately 14.8 km (9.2 mi). The estimated cost for Alternative E3 is \$301 million.

**South Segment:** Alternative E3 would start at the end of the existing four-lane freeway section. The E3 alignment would turn to the northwest and cross the existing U.S. 101 near Hollands Lane where an interchange would be constructed. Heading into the hills west of Willits, Alternative E3 would cross Baechtel Creek and continue north on the west side of the Sherwood Valley Indian Rancheria. Alternative E3 would continue north across the California Western Railroad (Skunk Train), across Broaddus Creek, and S.R. 20 west of the Willits Cemetery. An interchange at S.R. 20 would provide access for motorists traveling to Fort Bragg or Willits. The alignment would turn to the northeast and continue through the hills, crossing over Exley Lane and under Sherwood Road. Turning north, Alternative E3 would provide a third interchange at Upp Creek. Just north of the Upp Creek Interchange is the approximate location of the node dividing the north and south segments of this alternative.

**North Segment:** The E3 alignment would continue north through the hills and east of the Brooktrails Community and the Willits Airport. The alignment would cross Outlet Creek, the Northwestern Pacific Railroad, and Skow Road before conforming with existing U.S. 101 north of Reynolds Highway at Oil Well Hill. The alignment would continue on the existing two-lane highway to the end of the project study area.

**Engineering Features:** The vertical alignment of Alternative E3 would begin with a slight downgrade, but after heading into the hills, the grades would increase. Grades would rarely be less than 2 percent except at the vertical crests and sags of the curves. Alternative E3 would include truck climbing lanes on a large, steep hill between Baechtel Creek and the proposed S.R. 20/U.S. 101 Interchange. The northbound truck-climbing lane would begin on the west side of the Baechtel Creek Bridge and end about 1.0 km (0.6 mi.) west. The southbound climbing lane would run about 1.5 km (0.9 mi) between the top of the hill and the southbound on-ramp at the S.R. 20/U.S. 101 Interchange.

Alternative E3 would include three interchanges that act as access points. The Hollands Lane Interchange would be located near the intersection of Hollands Lane with existing U.S. 101. A rehabilitated, and somewhat realigned Hollands Lane, which would become a portion of South Main Street, would form the local road for the southerly access to the Willits area.

A second interchange approximately 4.5 km (2.8 mi) northwest of the proposed Hollands Lane Interchange, which would be known as the S.R. 20/U.S. 101 Interchange, would provide access to Willits and Fort Bragg. Here again, the mainline of U.S. 101 would cross over the local road, which is S.R. 20. The highway would continue as S.R. 20 to the west, but it would become a local road to the east. At Upp Creek, approximately 2.9 km (1.8 mi) northwest of the second interchange, a third interchange would be constructed.

Alternative E3 would cross over the Northwestern Pacific Railroad tracks at the south end of the project at Upper Haehl Creek and again at the north end of the project near Outlet Creek. Near the S.R. 20/U.S. 101 Interchange, the alignment would cross the California Western Railroad. None of the crossings would be at-grade.

**Structures:** Alternative E3 includes ten structures on the mainline, six ramp structures, and two structures for local roads. Major structures include the Exley Lane Bridge, the Upp Creek Bridge, the Wild Oat Canyon Bridge, and the Outlet Creek Bridge.

### 3.4.3 Alternative J1T

Volume II, Atlas Map 6 depicts the alignment and structures for Alternative J1T.

**Alignment Description:** Alternative J1T would begin approximately 0.9 km (0.6 mi) south of the Haehl Overhead and end approximately 2.9 km (1.8 mi) south of Reynolds Highway. The overall length of this alternative would be approximately 9.0 km (5.6 mi). The estimated cost for J1T is \$151 million.

**South Segment:** Like the other valley alternatives, Alternative J1T would diverge from existing U.S. 101 at the Upper Haehl Creek Interchange and head northwesterly on the existing embankment constructed with excess fill material from a previous highway project. The alignment would run along the east side of the Northwestern

Pacific Railroad tracks for approximately 1.7 km (1.1 mi.), turn north to cross Center Valley and Hearst -Willits Roads just east of the Lofling Field baseball diamonds and Willits Rodeo Grounds, then turn northwesterly and skirt west of the city's wastewater treatment plant. The alignment then would cross Mill Creek which is the approximate location of the node that separates the south and north segments of this alternative.

**North Segment:** After crossing the Northwestern Pacific Railroad, Alternative J1T would provide access to the north side of Willits with the Quail Meadows Interchange. The mainline would reduce from four lanes to two lanes and conform to existing U.S. 101 just north of the old truck scales and just south of the at-grade crossing of the Northwestern Pacific Railroad. The alignment would continue on the existing two-lane highway to the end of the project study area.

**Engineering Features:** The vertical alignment would begin with a gentle downgrade and head northwesterly from the existing freeway section to approximately East Hill Road. From this point north to the Quail Meadows Interchange, the flat valley floor would allow grades that are nearly flat except at structure approaches and departures. Throughout the valley, Alternative J1T would cross the 100-year floodplain. However, Alternative J1T would be constructed at least 1 m (3 ft) above the estimated 100-year water surface level.

Alternative J1T would include two interchanges as the access points to Willits and Fort Bragg. The Upper Haehl Creek Interchange would be located at the south terminus of the project. The northbound exit ramp would tie directly to existing U.S. 101 and would become S.R. 20 at this location. Approximately 6.3 km (3.9 mi) northwest of the proposed Upper Haehl Creek Interchange, the Quail Meadows Interchange would provide access to Willits and Fort Bragg via Main Street, as U.S. 101 would become a local road in this area. For this interchange, the ramps would terminate at a realigned Redwood Highway (existing U.S. 101) that would become a local road in this area. Between the point where existing U.S. 101 would be realigned and where Alternative J1T would connect to existing U.S. 101, the former highway (existing U.S. 101) would become an access road for the mobile home parks and other parcels that had their direct access to U.S. 101 severed.

This alternative would conform to existing U.S. 101 approximately 1.7 km (1.1 mi) north of the Quail Meadows Interchange. The existing highway would remain in

service at U.S. 101 north of this point and retain the existing at-grade crossing with the Northwestern Pacific Railroad.

**Structures:** The alignment would include seven mainline structures and two ramp structures. The major structure in this group would be the Floodway Viaduct that would span the Little Lake Valley floodway.

#### **3.4.4 Alternative LT**

Volume II, Atlas Map 7 depicts the alignment and structures for Alternative LT.

**Alignment Description:** Alternative LT would start approximately 0.9 km (0.6 mi) south of the Haehl Overhead and end 2.9 km (1.8 mi) south of Reynolds Highway. The overall length of this alternative would be approximately 9.3 km (5.8 mi). The estimated cost for Alternative LT is \$130 million.

**South Segment:** Like the other center valley alternatives, Alternative LT would diverge from existing U.S. 101 at the proposed Upper Haehl Creek Interchange and head northwesterly on the embankment constructed with excess fill from a previous freeway project. The alignment would run along the east side of the Northwestern Pacific Railroad tracks, turn north to pass Little Lake Valley Cemetery and across East Hill Road. The alignment would lie immediately west of Bray Road as the alternative crossed Center Valley and Hearst-Willits Roads. Alternative LT then would turn westerly as it continued across the valley north of the city's wastewater treatment plant. The alignment then would cross Outlet and Mill creeks. Mill Creek is just east of the node that separates the south and north segments of this alternative.

**North Segment:** After crossing the Northwestern Pacific Railroad, Alternative LT would provide access to the north side of Willits with the Quail Meadows Interchange. The roadway would reduce from four to two lanes and conform to existing U.S. 101 just north of the old truck scales and just south of the at-grade crossing of the Northwestern Pacific Railroad. Alternative LT would be identical to Alternative J1T after crossing the access road for the proposed Quail Meadows Interchange. The alignment would continue on the existing two-lane highway to the end of the project study area.



**Engineering Features:** The vertical alignment would begin with a gentle downgrade and head northwesterly from the existing freeway section to approximately East Hill Road. Between East Hill Road and the Quail Meadows Interchange, the flat valley floor would allow nearly flat grades except at bridge approaches and departures. Throughout the valley, Alternative LT would cross the 100-year floodplain. The profile of Alternative LT mainline would remain at least 1 m (3 ft) above the estimated 100-year water surface level.

Alternative LT would include two interchanges to direct motorists to Willits and Fort Bragg. The Upper Haehl Creek Interchange would be located at the south terminus of the project. The northbound exit ramp would tie into existing U.S. 101, which would become S.R. 20 at this location.

Approximately 6.6 km (4.1 mi) northwest of the proposed Upper Haehl Creek Interchange, the Quail Meadows Interchange would provide access to Willits and Fort Bragg toward the north end of the project. For this interchange, the ramps would terminate at a realigned U.S. 101 that would become a local road in this area. Between the point where existing U.S. 101 would be realigned and where Alternative LT would connect to existing U.S. 101, the former highway (existing U.S. 101) would become an access road for the mobile home parks and other parcels that had direct access to U.S. 101 severed.

This alternative would conform to existing U.S. 101 approximately 1.7 km (1.1 mi) north of the Quail Meadows Interchange. The existing highway would remain in service at U.S. 101 north of this point and retain the existing at-grade crossing with the Northwestern Pacific Railroad.

**Structures:** Alternative LT would include eight mainline structures and two ramp structures. Its floodway viaduct would span the Little Lake Valley floodway over Outlet and Mill Creeks. This viaduct would be designed to convey the base flood without substantially increasing the 100-year water surface elevation. Smaller bridges or culverts would be constructed over other creeks in the area.

### **3.4.5 No-Build Alternative**

Under the No-Build Alternative, conditions along U.S. 101 would remain as they currently exist. The No-Build Alternative would not cause adverse environmental

impacts identified for the proposed project and no mitigation measures would be needed.

With the No-Build Alternative, no improvements would be made to the existing facilities though traffic volumes would increase. The No-Build scenario evaluates future traffic conditions with no capacity increasing improvements to the study area. Routine maintenance would continue.

If the No-Build Alternative were chosen, congestion would increase substantially in and around the Willits area. If no bypass is constructed and U.S. 101 is not improved through Willits, as assumed in the No-Build scenario, delay would increase exponentially. Northbound traffic queues approaching the intersection of U.S. 101 at S.R. 20 is expected to back up past Evergreen Village during the peak hour. Congested conditions are expected to occur beyond the peak hour and queues would back up for several hours of the day. Average northbound speeds under the No-Build scenario are expected to be less than 8 miles per hour in the peak hour in downtown Willits (Baechtel Road to Sherwood Road), which is half the speed that northbound traffic currently experiences in downtown Willits. Traffic collisions increase these delays, and at these times, emergency vehicles are delayed even further in getting assistance to victims.

With the No-Build scenario, interregional travelers will continue to travel through downtown Willits and to experience increased delay as a result of increased congestion in Willits. Traffic congestion in Willits will worsen as traffic volumes increase. Northbound traffic will continue to queue-up south to Holly Street or beyond during peak hour periods. Although traffic operation at the Holly Street intersection is expected to improve with construction of a Holly Street signal in the near future, it will not reduce overall delay. Higher traffic congestion will increase friction associated with commercial driveways, side street traffic, parking and pedestrians. Side street traffic trying to access U.S. 101 increasingly will experience delayed access to U.S. 101, further increasing congestion on the side streets leading to Main Street.

With no capital improvements, there is no capital cost for this alternative. As with any highway, there would be continued costs associated with maintenance, periodic rehabilitation, and any safety and operational improvements to the existing facility. Although difficult to quantify, there also would be costs born by the local community

related to air quality, noise, social, and economic impacts; and regional costs associated with an inefficient transportation system.

Section 2.2, Need for Proposed Bypass Project discusses the existing roadway conditions in Willits, including problems and deficiencies, collision rates, and pedestrian and bicycle conflicts with interregional traffic that would continue if the No-Build Alternative were chosen. Section 3.5.1, below, illustrates projected safety conditions under the No-Build Alternative.

### **3.5 Comparison of Alternatives**

Goals of the project are to improve level of service, improve safety, and reduce delays for interregional/interstate traffic on U.S. 101. All of the alternatives under consideration would meet these three goals by taking interregional traffic out of Willits. Benefits of the project are improved safety and level of service to local traffic, reduced noise and vibration on Main Street through Willits, and improved conditions for bicyclists and pedestrians in Willits. Comparisons among the alternatives for safety and for LOS are discussed below.

#### **3.5.1 Safety**

Caltrans District 1 Office of Traffic Safety determined the statewide average number of collisions for a five-year period for each of the alternatives based on averages for similar facilities and using forecasted traffic volumes for the year 2028. A summary of the statewide average total number of collisions and the statewide average number of fatal plus injury collisions for each alternative is given Tables 3-2 and 3-3.

These averages are based on statewide averages of similar facilities and are for comparison purposes only. The preferred alternative may not perform as indicated in the tables.

In the following tables, the column titled “U.S. 101 Freeway” represents the statewide average number of collisions for the proposed U.S. 101 facility for each alternative. This is the route intended for interregional traffic on U.S. 101.

**Table 3-2. Statewide Average Number of Collisions Over a Five-Year Period Using 2028 AADTs**

Alternative	U.S. 101 Freeway	Main Street	S.R. 20	Intersections	Total
C1T	179	382	62	112	735
E3	103	241	24	106	474
J1T	239	294	62	113	708
LT	241	294	62	113	710
No Build	N/A	734	62	142	938

Source: District 1 Traffic Safety Office

As demonstrated in Table 3-2, Alternative E3 has the lowest statewide average total number of collisions, slightly less than half the average number for the No Build Alternative. This is a result of two factors. First, Alternative E3 moves more traffic off of Main Street than the other alternatives. Secondly, Alternative E3 provides a freeway the full length of the alternative rather than a combination of freeway and two-lane conventional highway provided by the valley alternatives. Freeway facilities typically have lower collision rates than conventional highways.

The average total number of collisions for the valley alternatives is approximately 22 to 25 percent below the No Build Alternative. All of the build alternatives provide alternate routes for Main Street traffic, thus the average number of collisions on Main Street for these alternatives is less than the number for the No Build.

**Table 3-3. Statewide Average Number of Fatal Plus Injury Collisions Five-Year Period Using 2028 AADTs**

Alternative	U.S. 101 Freeway	Main Street	S.R. 20	Intersections	Total
C1T	84	178	28	52	342
E3	49	113	11	52	225
J1T	111	138	28	52	329
LT	112	138	28	52	330
No Build	N/A	342	28	67	437

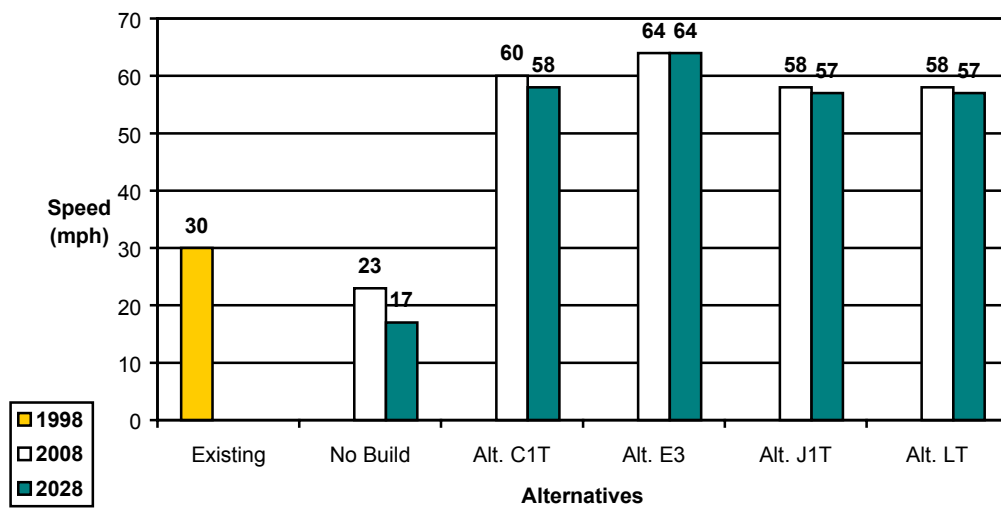
Source: District 1 Traffic Safety Office

The average number of fatal plus injury collisions for all the build alternatives is below the number for the No Build Alternative. Alternative E3 has the lowest number at just over half the number on No Build Alternative, while the other freeway alternatives are about 75 percent of the number on the No Build Alternative.

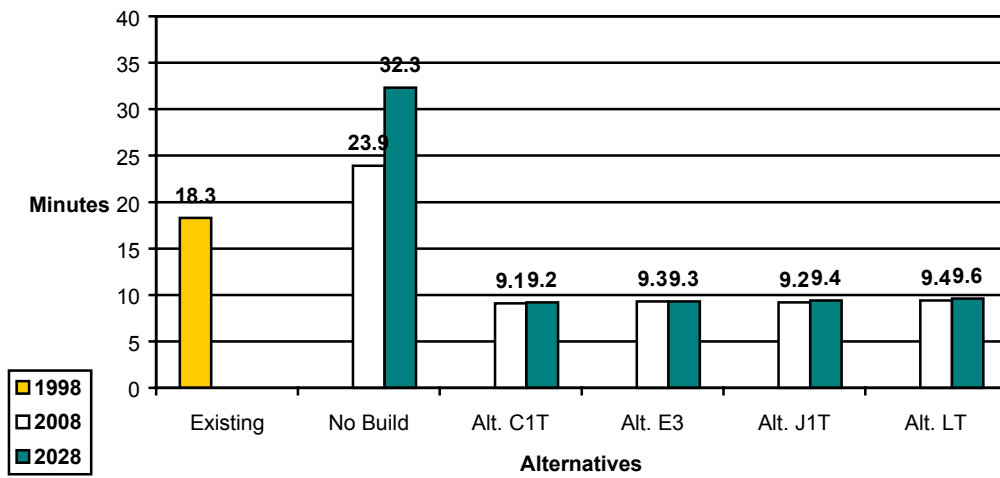
### **3.5.2 Level of Service**

Figures 3-4 and 3-5 provide a comparison of the alternatives showing average speeds and estimated travel times on U.S. 101 in the project limits from 0.9 km (0.6 mi.) south of the Haehl Overhead to 1.6 km (1.0 mi.) north of Reynolds Highway. Both tables indicate that freeway travel along all the proposed alternatives will be 70 percent shorter for average trips through Little Lake Valley in 2028 compared with the No Build Alternative.

**Figure 3-4. Average Speed on U.S. 101**



**Figure 3-5. Average Travel Time on U.S. 101**



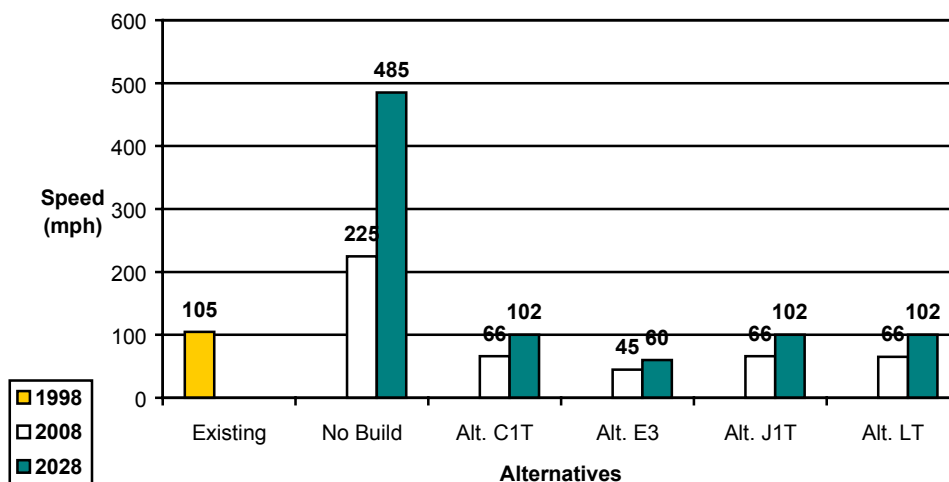


The existing intersection of U.S. 101 (Main Street) and S.R. 20 operates at Level of Service F. All of the build alternatives result in significant improvements to that intersection. Alternative E3 offers the most improvement, with the intersection operating at LOS C for both 2008 and 2028. Alternatives C1T, J1T, and LT provide LOS D at this intersection in 2008 and 2028.

For alternatives C1T, J1T, and LT, the south and west legs of the intersection would be S.R. 20, and traffic travelling on U.S. 101 destined for Fort Bragg would turn west here. For Alternative E3, the intersection is strictly where two local roads, Main Street and Willits-Fort Bragg Road intersect. The junction of U.S. 101 and S.R. 20 would be at the interchange west of town, and traffic on U.S. 101 heading toward Fort Bragg would not need to enter Willits. The removal of some of the traffic from the intersection in town is what allows Alternative E3 to provide a better level of service at that intersection than the valley alternatives provide.

No traffic queues or congestion related delay is anticipated on the freeway portion of the bypass alternatives through the 20-year time horizon after construction. With the No-Build Alternative, northbound traffic approaching the U.S. 101 (Main Street)/S.R. 20 junction would back up south past Evergreen Village. Currently, these long queues limit and often result in delayed access to U.S. 101 (Main Street) for side-street traffic. This condition would occur with higher frequency and duration in future years if no improvements were made to the system.

No delay is anticipated on the freeway portion of the bypass alternatives through the 20-year time horizon after construction. If the No-Build Alternative were chosen, future delay would be considerably higher in and around Willits. Currently, overall total delay for the study area is 105 hours in the peak hour, and if no improvements are made to the system, this delay would increase to 485 hours in 2028, a 350 percent increase. Figure 3-6 shows the total peak hour delays on the system through the project limits. With the No-Build Alternative, congestion in and around Willits increasingly would delay interregional traffic. Existing average speeds are 30 mph for the project study area and, with the No-Build Alternative, would average 17 mph in 2028. This decreases the average speed by 13 mph and increases the travel time by 14 minutes per vehicle.

**Figure 3-6. Total Peak Hour Delay**

LOS A would be maintained on all freeway portions of the bypass alternatives. Special holiday weekends such as Labor Day and Memorial Day are exceptions, though levels of service would not be expected to drop below LOS B. Levels of service on the two-lane highway section north of Willits would be LOS D in 2008 and LOS E in 2028 for Alternatives C1T, J1T, and LT. The level of service for the No-Build Alternative would be LOS F by 2008 and beyond.

All of the build alternatives--C1T, E3, J1T, and LT—would provide LOS C or better for interregional traffic on the roadway to be constructed. The project traffic report, for the period through the year 2028, anticipates that travel on the freeway mainlines would operate at LOS A.

Traffic congestion and lack of capacity on the existing highway result in lengthy queues. This is especially evident north of the city during peak traffic volumes on holiday weekends and special events, when southbound queues may extend as far north as Reynolds Highway. Any of the build alternatives will allow through traffic to bypass Willits where the most severe congestion occurs. Diverting heavy traffic around the congested area should eliminate, or at least relieve, the queuing on the existing highway. Thus, although Alternatives C1T, J1T, and LT will make no capital improvements north of the conform points, the existing highway north of these points is expected to operate better than under the No Build Alternative.

Alternative E3 would provide LOS A on the mainline to Oil Well Hill.

All of the build alternatives would reduce volumes on existing U.S. 101 (Main Street) in Willits in comparison to the No Build Alternative.

Table 3-4 summarizes the existing traffic volumes as well as the projected 2008 and 2028 traffic volumes for each of the alternatives.

**Table 3-4. Traffic Volumes on U.S. 101**

Alternative	Traffic Volumes					
	Peak Hour (vph)			Annual Average Daily Traffic (vpd)		
	1998	2008	2028	1998	2008	2028
Existing	1,920			25,700		
No Build		2,470	3,060		32,600	40,800
C1T		920	1,150		12,300	15,300
E3		1,270	1,590		16,900	21,200
J1T		1,080	1,350		14,400	18,000
LT		1,080	1,350		14,400	18,000

Vph – vehicles per hour

Vpd – vehicles per day

### 3.6 Alternatives Considered But Eliminated From Further Study

A range of reasonable alternatives that potentially could meet the stated project purpose and need were considered by the Project Development Team (PDT), the Willits Technical Advisory Groups (TAG), and the Section 404 Memorandum of Understanding (MOU) signatory agencies. Alternative alignments were formulated and studied. Many of the alternatives studied had a number of alignment variations resulting from different interchange locations and combinations. Some of these have been eliminated, and some have remained viable for detailed study in this DEIR/EIS.

The study for the Willits Bypass began in the early 1960s. However, due to lack of funding and higher priority projects, the Willits Bypass project was delayed. In 1998, Caltrans re-initiated formal studies.

Five alternatives are studied in this DEIR/EIS. Four of these are freeway alternatives and one is the No Build Alternative. During the project development process, Caltrans held meetings with City of Willits staff, the TAG and interested community groups to develop alternatives for study. Several elected bodies such as the Willits City Council, the Mendocino Planning Commission, the Mendocino Board of Supervisors and the Brooktrails Township CSD also provided input on alternative design alignments.

In 1988, Alternatives A through E along with the No Build Alternative were studied in the Project Study Report (PSR), prepared for the California Transportation Commission (CTC). The six alternatives were presented to the public at an informational public meeting held in Willits on April 6, 1988. On December 5, 1989, Caltrans conducted additional scoping sessions. As a result of the meetings, the PDT added Alternatives F through R to the six listed in the PSR for a total of 19 alternatives to be studied during the project development process. Map 29 in Volume II shows these alternatives.

In 1992, based on the recommendations from the Willits Traffic Advisory Committee, Caltrans investigated a city street type alternative parallel to U.S. 101. This became the Transportation System Management (TSM) alternative. Caltrans also studied a generic two-lane alternative and determined that a two-lane bypass would not achieve a level of service C. Reasons for eliminating both alternatives are discussed in Section 3.6.1 and Section 3.6.2, respectively.

In 1993, two more alternatives were recommended for study. USEPA suggested study of Alternative K2 and the Willits City Council suggested study of Alternative L. The reasons for eliminating Alternative K2 are discussed in Table 3-5.

In early 1993, TAG and PDT meetings were held in Willits to discuss Caltrans staff recommendations to drop a number of design alternatives from further consideration in the project development process. Caltrans staff prepared an alternative location map, a matrix that illustrated the various alternative selection criteria and a list of criteria for interpreting the engineering and environmental matrix. The intended

purpose of developing the criteria and matrix was to rank and evaluate the alternatives, which included a combination of alternatives, ranging from alternatives that bypassed Little Lake Valley in the hills to the east (K) and to the west (E). The Willits Bypass Study Team (Caltrans staff) evaluated and ranked alternatives based on ability to achieve the following criteria: cost; hazardous waste conflicts; interregional traffic delay reduction; accident reduction; Section 4(f) impacts; wetland impacts; upland habitat impacts; sensitive species impacts; residential, agricultural, and business relocations; service to local traffic; and engineering feasibility.

Refer to Appendix P for the recommendation matrix comparing the alternatives. The evaluated each of the alternatives against several criteria, using a ranking of “excellent” to “poor.” “Excellent” represented an alternative that is superior with respect to a particular criterion and “poor” represented an alternative that is poor with respect to a given criterion. The PDT rejected several of the alternatives for the reasons shown in the matrix and recommended further study on Alternatives A, C1, J1, E3, TSM and No Build.

On May 26, 1994, the NEPA 404 MOU signatory agencies met and agreed to the project purpose and need statement, modal choice statement, criteria for selection of alternatives and the range of alternatives to be studied further. Alternatives C1, E3, J1, K, K2, L, TSM, and No Build constituted the range of alternatives. Preliminary engineering and environmental investigations continued on these alternatives, but due to funding shortages and resource redirection, by 1995, progress was stopped. In 1998, new funding and resources were allocated and studies resumed on the alternatives approved under the NEPA 404 MOU process.

Throughout the scoping sessions, suggestions for various mid-valley interchange locations arose along with variations of a rail alternative. Alternatives F through R came out of the 1988-1989 scoping sessions. In 1998, Caltrans commissioned a Value Analysis (VA) Study that evaluated many of the F through R Alternatives. Several of the VA proposals dealt with reducing construction for the northern portions of the alternatives. Modifying the valley alternatives to the truncated alternatives addressed this concern. A number of alternatives included at-grade intersections and were rejected due to safety concerns. A number of VA study team proposals were implemented. Appendix P summarizes the highlights of the VA study.

After extensive engineering and environmental investigations, Caltrans determined that Alternatives K and K2 were no longer prudent or feasible and the TSM alternative did not meet the project's purpose and need, and therefore, reduced the number of alternatives to C1, J1, L, E3 and No Build. In Fall 2000, due to budget constraints, Caltrans decided to truncate or shorten Alternatives C1, J1 and L. The decision to truncate the valley alternatives resulted in Alternatives C1T, J1T and LT. These truncated alternatives were shortened to conform to the existing highway at the north end of the project area and to reduce the costs of former Alternatives C1, J1 and L. Table 3-5 summarizes the reasons why alternatives were eliminated from further environmental analysis in the DEIR/DEIS.

**Table 3-5. Alternatives Considered But Eliminated from Further Study**

Alternatives	Reason for Elimination from Further Study
Alternatives A, A1, A2, A3 & A4. CTC adopted Alternative A as the original alignment in 1962. Versions of Alternative A known as A1 - A4 identified different combinations of interchange locations.	The PDT rejected Alternative A due to the substantial potential impacts to wetlands and other sensitive natural habitat. Alternative A also required time-consuming and extensive construction techniques to address embankment settlement and consolidation caused by poor soil conditions in northern Little Lake Valley.
Alternative B. In an effort to modify Alternative A to avoid wetlands, Alternative B diverged from Alternative A beginning just north of the crossing of Hearst-Willits Road, then veered to the east and skirted the eastern limits of Little Lake Valley.	Preliminary investigations revealed that Alternative B, rather than having lower wetland impacts, actually had higher wetland impacts than Alternative A. In addition, a later alignment, Alternative K, better represented the intent of Alternative B.
Alternative C. Similar to Alternative B, Alternative C diverged from Alternative A beginning just north of the crossing of Hearst-Willits Road. From there, Alternative C skirted the west side of Little Lake Valley and rejoined Alternative A and the existing highway on Oil Well Hill. Alternative C1T developed from Alternative C. Versions of Alternative C known as C1-C4 identified different combinations of interchange locations.	Alternative C1 was retained for further study. The PDT rejected other versions of Alternative C because of the substantial potential impacts to wetlands and due to the high cost and growth-inducing impacts of additional valley interchanges. Mendocino County requested Caltrans to investigate the Alternative C/J in 1993. This was a combination of what is now the south portion of C1T and the north portion of J1. Most of Alternative J1 north of Quail Meadows is no longer under consideration, and hence, the C/J alternative is no longer considered viable.
Alternative D traversed the hilly terrain west of Willits and was similar to E3 but closer to Willits.	The PDT rejected Alternative D based on its similarity to Alternative E and due to substantial potential impacts to wetlands and riparian habitat along the north end of Little Lake Valley.

Alternative E ran through the hills near Willits cemetery. The north end connected to Alternative A after traversing the hills west of the old Louisiana Pacific mill site. Versions of Alternative E known as E1-E3 had different combinations of interchange locations.	Alternative E3 was retained for further studies. The PDT rejected other versions of Alternative E3 due to potential impacts to residential development and the estimated higher cost for interchanges at Wild Oat Canyon and at Oil Well Hill.
Alternative F proposed relocating the Northwestern Pacific Railroad tracks through a portion of Willits and using the resulting right of way for a low speed expressway.	The PDT rejected Alternative F due to its similarity with Alternative O and due to the high cost of relocating railroad tracks.
Alternative G describes many variations of alternatives from the Project Study Report that connected with US 101 south of Oil Well Hill and north of Haehl Creek.	The PDT rejected Alternative G because there was no cohesive alternative described from the public scoping sessions. Many of the proposals loosely defined under this alternative were studied as variations of other alternatives.
Alternative H came out of the scoping sessions as an alignment that would relocate U.S. 101 at least 8 miles west of Willits to remove noise and air pollution from town.	The PDT rejected this alternative due to the high costs and because it was outside the scope of the study area.
Alternative I was a tunnel located roughly in the Alternative E corridor. It was suggested as a means of reducing impacts to Willits Cemetery and the other properties along the proposed D/E alignments.	With an estimated cost of \$250 million to \$300 million for the tunnel alone, the PDT rejected this alternative.
Alternatives K and K2 were studied under the NEPA/404 MOU process. Alternative K was an easterly wetland avoidance alternative located in the hills to the east of Reynolds Highway. Alternative K2 followed K for about the first 1.2 miles, then continued north along the base of the hills on the east side of the valley.	With concurrence from the NEPA 404 agencies, the PDT rejected both alternatives. The PDT felt that constructing facilities on the east side of the valley resulted in poor service in terms of interchange locations. Studies indicated that both alternatives generated unavoidable impacts to wetlands, archaeological resources, and the destruction of millions of Baker's Meadowfoam plants, a listed species of concern and listed as rare under the California Plant Protection Act. Both alternatives required deep cuts in active landslide areas and traversed material of questionable stability.
Alternatives J1 and J2 followed the railroad tracks after leaving existing U.S. 101 at the south end of Willits, skirted the rodeo grounds, skirted the sewage plant to the east, and headed back toward U.S. 101, conforming just north of the Willits northerly city limits.	The PDT rejected J2 because it resulted in poor service in terms of interchange locations and could have growth-inducing impacts. The PDT retained Alternative J1 for further studies. Alternative J1 was truncated to become J1T.

Alternative L is a center valley alternative that avoids large wetland impacts along its northern half by conforming to the alignment of the existing highway and railroad.	The PDT retained Alternative L for further studies. Alternative L, which continued to a point on Oil Well Hill, was later truncated to become LT.
Alternative M offered an expressway through Willits skirting the wastewater treatment plant and corporation yard and widened existing U.S. 101 at the north end of the project to four lanes.	Based on its similarity with Alternative J, and because of safety concerns and whether an expressway could meet the project's purpose and need, the PDT dropped Alternative M.
Alternative N departed from U.S. 101 near Holland's Lane, then skirted the east side of the Mormon Church property crossing Haehl Creek, passing over East Hill Road and the railroad tracks, then paralleled the tracks with a two lane roadway through Willits.	A portion of Alternative N included four lanes with turn pockets and a portion included a continuous left turn lane. The PDT rejected this alternative based on its similarity to Alternative O.
Alternative O was similar to Alternative N, paralleling the Northwestern Pacific Railroad tracts. Alternative O proposed a four-lane boulevard expressway that continued beyond the old truck scales and railroad crossing north of Willits.	The PDT rejected this alternative due to substantial potential impacts to multi-dwelling residential units and potential impacts to Section 4(f) eligible properties.
Alternative P was a couplet through Willits. A couplet is a pair of one-way city streets with traffic running in opposite directions usually separated by a city block.	A preliminary traffic analysis revealed that this alternative would operate poorly because of the substantial out-of-direction travel it required. Citing the failure to meet project objectives of providing a safe and efficient highway, the PDT rejected this alternative.
Alternative Q involved a concept of two-lane routes with increased railroad use.	The modal analysis indicated a need for a highway solution rather than rail and, citing failure to meet project objectives of providing a safe and efficient highway, the PDT rejected this alternative.
Alternative R was a couplet through Willits. The alignment identified Main Street as the northbound lanes and suggested southbound lanes to the west of U.S. 101.	Like Alternative P, this alternative had widely separated north/southbound legs that required out-of-direction travel. Citing the failure to meet project objectives of providing a safe and efficient highway, the PDT rejected this alternative.

### 3.6.1 Alternative TSM

Transportation System Management (TSM) involves using existing transportation facilities for maximum benefit and making generally low cost improvements rather than constructing more expensive new or additional facilities. At the request of



members of the TAG and the PDT, the TSM alternative was developed as a non-freeway study alternative. Because of the fragmented local street network and the narrow roadway along Railroad Avenue, the Willits Bypass TSM alternative included construction of new roadway segments and purchase of numerous right of way parcels. This alternative paralleled existing U.S. 101 through Willits and provided at grade intersections including signalized and unsignalized local road connections. Community members with environmental concerns initially supported the TSM alternative. However, changes were made to meet City of Willits concerns and Caltrans design standards. Due primarily to high cost and severe environmental impacts, there appears to be limited public support for the current TSM alternative.

In February 2001, Caltrans management and FHWA considered but eliminated the TSM alternative because it would not attain the project purpose and need. The TSM alternative would operate as a parallel arterial to existing U.S. 101 and would provide the least delay reduction of all the alternatives. In addition, traffic studies showed that Alternative TSM was not expected to reduce the number of collisions when compared with the No Build Alternative. The freeway study alternatives, however, are expected to provide a substantial reduction in collisions, approximately 18 percent for the valley alternatives and 30 percent for Alternative E3.

The TSM alternative would have the greatest impact on community housing stock. The alternative would result in the removal of 140 residential units, including 104 single-family homes, 15 multi family units and 21 mobile homes. In addition, 28 commercial and industrial business would be relocated (including one utility which, alone, would cost an estimated \$25 million to relocate). There would not be sufficient housing in Willits for the large number of residents who would be displaced by the TSM alternative.

The TSM Alternative was the only alternative that would result in unavoidable adverse impacts to eligible historic architectural properties, including numerous structures within block 3 of the Willits Historic District. The TSM alternative would also have direct impact to those land uses in close proximity to its alignment. Possible impacts could include increased noise, increased traffic volumes, reduction in parking supply, and reduced access in the vicinity. These impacts would likely modify the existing character of the area. Finally, the TSM alternative had the

potential to physically divide the community of Willits and conflicts with the City's goal to provide a "livable, walkable" community.

On April 6, 2001, Caltrans submitted a letter, on behalf of Caltrans and FHWA, to each NEPA/404 resource agency informing them of Caltrans and FHWA's decision to eliminate the TSM alternative from further analysis (Appendix G). Caltrans and FHWA followed the letter with a telephone call to each agency. Each agency that was contacted expressed its lack of objection to eliminating the TSM alternative. USEPA expressed concern about eliminating the TSM alternative but said that it did not object to its elimination from further analysis.

### **3.6.2 Two-Lane Alternative**

In 1992, the California Transportation Commission (CTC), recognizing the importance of the Willits Bypass, programmed \$60.5 million for the project. Due to limited funding available for new projects, the CTC programmed only the funding for an initial two-lane expressway within an ultimate four-lane freeway right of way.

Following programming in 1992, Caltrans and FHWA found that there was no local or regional agency support for a two-lane expressway. The City, County, Mendocino Council of Governments (MCOG), and the North Coastal Counties Supervisors Association (representing the eight northwestern counties in California) recommended that funding be provided for initial four-lane freeway construction for the following reasons:

- Inconsistency with state and regional planning
- Poor level of service and lack of passing opportunities
- Safety concerns as a result of at-grade intersections
- Possible need for traffic signals
- Having to impact the corridor a second time when upgrading to 4-lane freeway

Responding to input from these agencies/organizations and the public, the CTC in the 1998 STIP changed the project from a two-lane expressway to a four-lane freeway, adding additional funding to the project. By this time, Regional Transportation Planning Agencies (RTPAs) had responsibility for 75 percent of the funding for new highway improvements. The MCOG chose to commit nearly all of its available funding (\$17 million) to the project to fully fund a four-lane freeway. The 2002 STIP

includes approximately \$116 million for construction and right of way for the project.<sup>5</sup>

Throughout the planning and environmental process for this project, a four-lane freeway project was being pursued, even when a two-lane expressway was to be the first phase.

Caltrans, through its Project Development Team (PDT), worked cooperatively with resource agencies, local agencies and the public in the development of the "purpose and need" statement, the alternatives, and in making decisions on alternatives to be dropped.

In 2000, after all technical studies were completed, the Willits Environmental Center (WEC) asked the PDT to add a two-lane alternative on "one of the valley alignments." In response, Caltrans and FHWA analyzed the concept but chose not to add a two-lane alternative because a two-lane alternative would not meet the "purpose and need" for the project. The "purpose and need" calls for a facility that would provide a "C" Level of Service (LOS) through the 20-year design period (i.e., 2023). A 2-lane facility would provide a "D" LOS at peak hour upon construction (2008), and would diminish to LOS "E" within the 20-year period.<sup>6</sup> LOS "E" exists when a facility approaches capacity during peak traffic flows. As such, to develop a two-lane highway would result in a facility that would be functionally obsolete within the design period. Based on the foregoing, Caltrans and FHWA have determined that a two-lane alternative would be eliminated from further environmental analysis and should not be considered.

### **3.6.3 Modal Choice Decision**

The NEPA/Section 404 MOU stipulates that there will be concurrence over the choice of transportation mode early in the planning process. Caltrans and FHWA analyzed the feasibility and practicability of employing alternative methods of reducing traffic volumes on U.S. 101 in Willits. Their studies concluded that local

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<sup>5</sup> As noted in Section 2.5 Funding and Schedule, additional state and regional funds will be acquired to fully fund construction of the project.

<sup>6</sup> It is important to recognize that LOS of "C" on a 4-lane freeway is substantially different than LOS "C" on a 2-lane highway, in that a freeway offers continuous passing opportunities. On a 2-lane road, passing opportunities are affected by volume and sight distance.

and regional rail is less feasible for the Willits/Ukiah area than increased bus transit, and interregional passenger rail ridership would not affect a significant change on Willits area highway traffic volumes. Low ridership projections are due to low population numbers and low densities. Due to these low ridership projections, neither bus transit nor passenger rail would reduce substantially the number of single occupancy vehicles in Willits enough to cause a notable reduction in traffic volumes on U.S. 101. In addition, short average trip lengths (two miles) with attendant waiting and travel to rail stations also make transit less attractive in the Willits area. Further, the Mendocino County RTP recognizes that the rural and sparsely populated nature of Mendocino County is most conducive to personal car use as a transportation mode. Consequently, the county's RTP focuses on improvements to streets, roads, and highway.

# **CHAPTER 4 Affected Environment**

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This chapter describes the environment likely to be affected by the project. The purpose of the chapter is to give the reader background information to evaluate the impacts of the project which are described in Chapter 5, Environmental Consequences.

## **4.1 Topography and Climate**

The proposed Willits Bypass is located within the Mendocino Highlands physiographic area. The Mendocino Highlands are the ridges and valleys that have a general north-northwest trend that is sub-parallel to the California coastline located approximately 35 km (22 mi) to the west.

Although elevations in the region are moderate, relief is sometimes considerable. The highest peak surrounding the Little Lake Valley has an elevation of 1,010 m (3,320 ft) and the valley floor drops to an elevation of 400 m (1,320 ft). Little Lake Valley and valleys located to the north are drained by the Eel River system. Valleys located south of Little Lake Valley drain to the Russian River system.

The project area has a Mediterranean climate. Summers are warm to hot with occasional temperatures over 38 °C (100 °F). Winters are cool to cold and can be accompanied by rare light snowfall. Frost and fog conditions can be expected to occur anytime throughout the winter months.

Rainfall is primarily concentrated between the months of October through March. Average annual rainfall in the Little Lake Valley is approximately 1,350 millimeters (mm) (53 inches [in]).

## **4.2 Geology**

### **4.2.1 Regional Geology**

The project area is located within the California Coast Range Geomorphic Province, which is characterized by numerous northwesterly trending geologic structures. The geologic history and structure of the California Coast Range Geomorphic Province is

extremely complex due to nearly continuous tectonic deformation. Approximately 80 million years ago, folding and faulting of uplifted rock formed the Mendocino Highlands most of which have remained exposed since their initial uplifting. Approximately 25 to 30 million years ago, the San Andreas Fault System began forming. The San Andreas Fault System now depicts the division between the Pacific and North American Tectonic Plates. Continued deformation has progressed to produce the present day geologic structures that are seen in the California Coast Ranges.

Several geologic conditions are present in the area, which may influence the selection of a preferred alternative, and the manner in which it would be constructed. Information about these conditions is presented below and the potential impacts of these conditions are discussed in Chapter 5, Environmental Consequences.

#### **4.2.2 Soils**

The various types of soil in the project area correspond approximately with the major topological features. The Cole soil is formed in recent alluvium and comprises most of the valley soil. The Pinole-Yokayo-Redvine soil is formed on alluvium terraces. The Yorkville-Yorktree-Squawrock soil is an upland soil formed under grass and oaks on unstable side slopes of hills and mountains where the underlying bedrock is graywacke, chloritic schist or shale. The Casabonne-Wohly-Pardaloe is an upland soil formed under forest where the underlying bedrock is Franciscan sandstone. The characteristics of these soils are summarized in Table 4-1.

Cole Soil underlies Alternatives C1T, J1T and LT. Alternative E3 is underlain primarily by Yorkville-Yorktree-Squawrock Soil and Casabonne-Wohly-Pardaloe Soil.

**Table 4-1. Summary of General Soil Characteristics**

Character	Cole	Pinole-Yokayo-Redvine	Yorkville-Yorktree-Squawrock	Casabonne-Wohly-Pardaloe
Surface Depth	203 mm	254 mm	457 mm	381 mm
Surface Color	Dark grey-brown	Brown	Brown-yellow	Reddish-yellow
Soil Type	Clay-loam	Gravelly-loam	Gravelly-loam	Gravelly-loam
Total Depth	1270 mm	1550 mm	1525 mm	1448 mm
Drainage	Poor	Good	Poor	Moderate
Permeability	Slow	Slow	Slow-moderate	Moderate
Available Water Capacity	High	High	Moderate-high	Low-moderate
Run-off	Ponded	Medium	Rapid	Very rapid
Surface Drainage	Required	NA	Saturated	NA
Shrink-Swell Potential	High	Moderate	High	Moderate
Load Support	Limited	Subject to compaction	Low soil strength	Moderate
Hazard of Erosion	Low-Moderate	Moderate	Moderate-high	Very high

Source: Willits Bypass Geotechnical Report, Caltrans, 1999

NA – information not available.

### 4.2.3 Seismic Activity

The California Coast Range Province is one of the most seismically active regions in the world. However, within the vicinity of Willits, little significant seismic disturbance has occurred historically when compared to adjacent regions. The relative absence of consequential seismic activity does not preclude the possibility that Willits will experience a large-scale event in the future. Two faults, Maacama and San Andreas, are present in the region. Table 4-2 summarizes pertinent data associated with these faults (Map 10).

A maximum credible earthquake is defined as the maximum earthquake that appears possible based on presently known geologic evidence. The maximum credible earthquake in the project area would result in a maximum credible acceleration of 0.7 g.

**Table 4-2. Seismic Activity**

<b>Fault</b>	<b>Distance to Project Site</b> <b>Km            (mi)</b>		<b>Maximum Credible Earthquake Magnitude</b> <b>Richter Scale</b>	<b>Maximum Credible Earthquake Project Area</b>
Maacama	0	0	7.25	0.7 G
San Andreas	47	29	8.00	0.2 G

Source: Willits Bypass Geotechnical Report, Caltrans, 1999

#### **4.2.4 Landslides**

Several naturally occurring types of landslides are present throughout the Willits area. The primary types of landslides present within the project limits are landslide slumps, translational and rotational landslides, and massive earthflows (Map 10). The geologic units that are of most concern, in respect to landslides, are the Plio-Pleistocene Non-Marine Sedimentary Deposits (PPNMSD) and the Franciscan Melange Unit (FMU).

The primary types of landslides that occur on hill slopes underlain by the PPNMSD are landslide slumps, and shallow to slightly deep-seated translational and rotational landslides. Within the PPNMSD, landslides tend to develop on moderately steep and steeper slopes where local ground water sources are present. Hill slopes comprised of the PPNMSD that are disturbed by road construction can develop ground distress with horizontal slope angles as low as 26 degrees.

The FMU is highly susceptible to the generation of landslides, even on gentle slopes. Soil creep, landslide slumps, shallow to moderately deep-seated translational and rotational landslides, and moderately deep to deep-seated massive earthflows can be common along hill slopes underlain by the FMU. Hill slopes subject to soil creep and earthflows usually have a hummocky appearance and can have horizontal slope angles as low as 14 to 17 degrees.

#### **4.2.5 Mineral Resources**

No mineral or aggregate quarries are operating currently in the project area. Three sand and gravel quarries are operating south of Willits, outside the project area, and therefore, would not be impacted by the proposed project.



## 4.3 Land Use

### 4.3.1 Land Use Regulation

Mendocino County, the City of Willits, and the Brooktrails Township Community Services District (Brooktrails) are the jurisdictions responsible for preparing land use planning documents and making decisions that affect land use in and around the project area. Land use planning activities in Mendocino County and Willits are directed by their General Plans, which lay out a blueprint for the physical, economic, and social development of community and county. A Specific Plan is the guiding document for development in Brooktrails.

The Mendocino County General Plan includes a wide variety of goals and policies to implement state planning laws; the protection of agricultural land and the maintenance of the county's natural resources are dominant themes in this document. In addition, the county's General Plan recognizes the importance of improving the transportation system including the State Highway System. For example, within the Circulation Element are statements regarding the need to improve U.S. 101 around Willits to improve safety and the efficiency of the system. The General Plan also recognizes the Willits Bypass as one of two higher priority projects in the county although no specific route is identified.

Willits is also in the process of adopting a Bike and Pedestrian Plan and a Downtown Specific Plan as part of its General Plan. Both of these plans are being developed within the context of a potential future bypass of the city by U.S. 101. The Bike and Pedestrian Plan will address outstanding safety issues for bicyclists and pedestrians, particularly along heavily traveled corridors within the city, such as the existing U.S. 101. The Downtown Specific Plan includes measures to improve the appearance of downtown Willits along the existing U.S. 101 corridor. The prospect of a bypass around Willits creates the possibility for substantial improvements along the current facility through the city. The Downtown Specific Plan will discuss the potential for wider sidewalks and fewer lanes of traffic along this corridor.

The Willits General Plan includes many policies designed to address the requirements of state planning laws and to achieve a self sustaining, small town community by balancing jobs, commercial development, and residential land uses. However, one policy stands out in the discussion of the Willits Bypass. Policy 2.240 of the General Plan indicates that Willits supports the "proposed U.S. 101 bypass of Willits,

including provisions for direct access from the bypass to the downtown Willits commercial area.” The General Plan includes a Preferred Future Roadway Network Map that shows a bypass located east of Willits in approximately the same location as Alternative J1T. However, the map includes a notation that the exact location of the bypass will be determined at a later date.

### 4.3.2 Existing Land Use

**Mendocino County** - Land use in the Little Lake Valley area can be characterized as agricultural production interspersed with large lots of rural residential uses. The primary farming activities are the production of hay and livestock, most commonly, sheep, cattle, and horses. A more detailed discussion of local agriculture and farmland is located in Section 4.4. Farmlands.

**Willits** - Within Willits, there is a variety of land uses including commercial, single family residential, and industrial uses. The city’s current General Plan land use map is shown in Figure 4-1. Commercial uses are located generally along or near U.S. 101 or S.R. 20. S.R. 20 serves as a generalized boundary that divides the newer and highway commercial uses (south) from the older and more locally related commercial uses to the north. The older and historic residential areas are located east of town between U.S. 101 and the railroad tracks. East of U.S. 101 is a mixture of older and newer residential units. Industrial uses are located along the periphery of the city limits. Table 4-3 shows the acreage of land used for each land use type within the city.

**Table 4-3. Existing Land Use in the City of Willits**

Land Use	Amount Zoned		Amount Developed	
	Hectares	(acres)	Hectares	(acres)
Residential	263	(650)	135	(334)
Commercial	98	(241)	47	(116)
Industrial	262	(646)	58	(144)
Public Facilities	71	(174)	N/A	N/A
Open Space	14	(35)	N/A	N/A
Total	707	(1,746)	----	----

Source: Willits General Plan, 1992

*Adjacent to Proposed Interchanges – Quail Meadows (Alternatives J1T and LT):*

Partially located in the northern tip of the City of Willits and partially in the adjacent unincorporated area. Zoning in this portion of Willits is C-G, General Commercial. Land use in Mendocino County west of this interchange is SR, Suburban Residential. To the east, land use is AG, Agricultural.

Upp Creek (Alternatives E3): Located in unincorporated Mendocino County, north of the City of Willits and west of existing U.S. 101. Land use in this portion of the county is SR, Suburban Residential.

Truck Scales Interchange (Alternative C1T): northernmost interchange, outside of the City of Willits. Land use on both sides of U.S. 101 at this interchange is agricultural.

Hollands Lane Interchange (Alternative E3): At Hollands Lane, near the City of Willits' southwestern edge, adjacent to both city and county land. Within the city, zoning is R-S, Residential-Suburban. The area in Mendocino County immediately to the west of this interchange is RL, Rangelands. Immediately south of the interchange, land use is Suburban Residential. To the south of the interchange, but not adjacent to it, is a large area designated as RMR20, Remote Residential with minimum 20-acre parcels.

Upper Haehl Creek Interchange (southern interchange for Alternatives C1T, LT, and J1T): located east of Willits' southern tip, entirely within Mendocino County. The use surrounding this interchange is Rangelands. Suburban Residential use is located to the west of the interchange. To the north, there is an area of RR5, Rural Residential with 5-acre minimum parcels. South of the interchange is a large area of Remote Residential with 20-acre minimum parcels.

*Brooktrails* - During the 1960s, the redwood and mixed forest area northwest of the City of Willits was subdivided into approximately 6,000 lots ranging in size from about 680 square meters (7,300 square feet [sq ft]) to 93 ha (230 ac). Development was intended for vacation or second homes, but gradually the development has become one of year-round permanent residents. Currently, about 1,250 residential lots are developed along with a golf course, limited commercial uses, and a community center. Although Brooktrails is an unincorporated area, it is served by a community services district that provides city services such as sewer, domestic water

and fire protection. Water supply and the development of a second access road into Brooktrails are the most immediate concerns that will affect its future development.

*Joint Development* – The City of Willits and the County of Mendocino are developing the Redwood Empire Railroad History Project, a 10-acre educational and recreational complex next to the Mendocino County Museum. The project funding includes TEA-21 funds and is approved by the Mendocino Council of Governments and the CTC. The City of Willits has planned the Railroad History Project improvements to prevent conflict with all of the proposed build alternatives. This project is discussed further in Sections 4.15 and 5.14. A letter from the City of Willits discussing the cooperative development of the city parcel and the bypass is included in Appendix N.

**Figure 4-1. Willits General Plan Land Use Diagram**

Place-holder

## 4.4 Farmlands

Today, the primary farming activity in the project area is the production of hay and livestock, most commonly, sheep, cattle, and horses (Map 13). The foothills west of Willits are used extensively as rangeland.

Mendocino County's prime farmland is found in several small Mayacamas and Coastal Range Mountain valleys. Many of these intermontane valleys have alluvial fans, stream and lake deposits: these areas are subject to inundation making agricultural activity difficult if not impossible. Much of the County's higher land is home to the County's urban centers, which precludes the full utilization of its prime farmland.

The State Department of Conservation's Farmland Mapping and Monitoring program has not mapped Mendocino County; as a result, land use information, such as farmland conversions and other pertinent information, has not been compiled. However, the agricultural census does give some insight to the existing condition of farmland utilization in the county (Table 4-4).

According to the agricultural census for 1997, Mendocino County has seen an increase in the number of full-time farms from 532 in 1992 to 564 in 1997. However, there is a decrease from 725,118 acres in 1992 to 638,566 acres of land in agricultural use in 1997. Mendocino County has seen a marked decrease of 56 percent in the acreage of land permitted for grazing, from 134,126 acres in 1992 to 58,742 acres in 1997.

**Table 4-4. Mendocino County Summary by Land Use Category**

Agricultural Land Use Category	County Summary (acres)	
	1992	1997
Land in farms	725,118	638,566
Irrigated	23,060	24,716
Total cropland	29,298	30,425
Average size of farm	666	585
Full time farms	532	564

Source: Agricultural Census for Mendocino County

The Natural Resources Conservation Service (NRCS) soil survey indicates a high concentration of prime soils in the project area; however, intensive agricultural production is not found in the area. This phenomenon is due to the high water table and lack of drainage, which precludes the ability to cultivate orchards or vineyards in the area.

#### **4.4.1 California Land Conservation (Williamson Act)**

The Williamson Act of 1965 is the state's principal policy for the preservation of agricultural and open-space land. The program encourages landowners to work with local governments in order to protect important farmland and open-space.

Landowners can enroll parcels for a minimum of 10 years. This program helps local governments to restrict land to agricultural and compatible open space use. In doing so, land is assessed for property taxes at a rate consistent with its actual use, rather than the potential value of the land. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth.

Williamson Act lands are classified as prime or non-prime. Prime Farmland is lands rated I and II in the Land Use Capability Index or has a rating of 80 through 100 in the Storie Index, a method of evaluation used by the Natural Resources Conservation Service. Non-prime land is usually grazing and rangeland. These lands can also be considered as Open Space of Statewide Significance.

The Williamson Act contains notification provisions (Government Code Section 51291(b)) that require state and local agencies to notify the Department of Conservation of the possible acquisition of Williamson Act contracted land.

Mendocino County actively participates in the Williamson Act program (Table 4-5). In 1999, a total of 464,095 acres was enrolled in the program. Land considered prime under this program totaled 32,192 acres (7%) and non-prime, 431,903 acres (93%), constituted the remainder. There has been a decrease of 33,835 acres or 3.5 percent enrolled in the program from the previous year. Property value increases and the steadily-rising demand for residential property in Mendocino County have led to decreasing enrollment in Williamson Act contracts.

**Table 4-5. Mendocino County Acreage Enrolled in Williamson Act Program**

Category	Total Acreage Per Year	
	1998	1999
Prime	33,256	32,192
Non-prime	464,674	431,903
Total	497,930	464,095

Source: Personal communication, Tim Bryant, Williamson Act Analyst, Department of Conservation.

Table 5-9 in Section 5 Environmental Consequences shows a summary of Williamson Act contracted land in the project area that would be impacted by the proposed project alternatives.

## **4.5 Social Characteristics**

The following discussion describes the social and economic environment in the project area.

### **4.5.1 Environmental Justice**

Executive Order 12898 (Federal Register, Vol. 59, No. 32) requires each federal agency to take the appropriate and necessary steps to identify and avoid “disproportionately high and adverse” effects of federal projects on minority and low-income populations’ health and/or environment. As part of the NEPA process, FHWA with assistance from Caltrans will determine consistency with this Executive Order.

In response to Executive Order (EO) 12898, FHWA provides FHWA Order 6640.23 that provides direction in complying with EO 12898. The order requires the environmental document to explain EO 12898, identify minority and low income groups and communities in the project area; discuss public participation efforts during project development; identify beneficial and adverse impacts, as well as mitigation measures; and identify if the project will cause a disproportionately high adverse human health or environmental effect on a minority and/or low income population in the project area.



In addition to EO 12898, Title VI of the Civil Rights Act of 1964, and related statutes, requires there be no discrimination in federally-assisted programs on the basis of race, color, national origin, age, sex, or disability.

To comply with these laws and regulations, this Draft EIR/EIS presents, in the following sections, the demographic, housing, and economic characteristics of Willits to identify minority or low-income populations that might be impacted by the proposed project.

#### 4.5.2 Demographics

The population of Willits and its trade area (an area from Willits to the Mendocino/Humboldt County border) has increased at an even and moderate rate over the last six years. The growth of the city has been approximately 1.7 to 2 percent per year while its trade area has grown at an annual rate of between 1.6 to 2.2 percent. Table 4-6 shows the population growth of both Willits and its trade area.

**Table 4-6. Willits Area Population**

Population	Willits	Greater Willits Area
1980 Total	3,706	9,935
1990 Total	5,027	13,155
1996 Total	5,402	14,213
2001 Projected	5,677	14,958
% Change 1980 - 1990	35.6%	32.4%
% Change 1990 – 1996	7.5%	8.0%

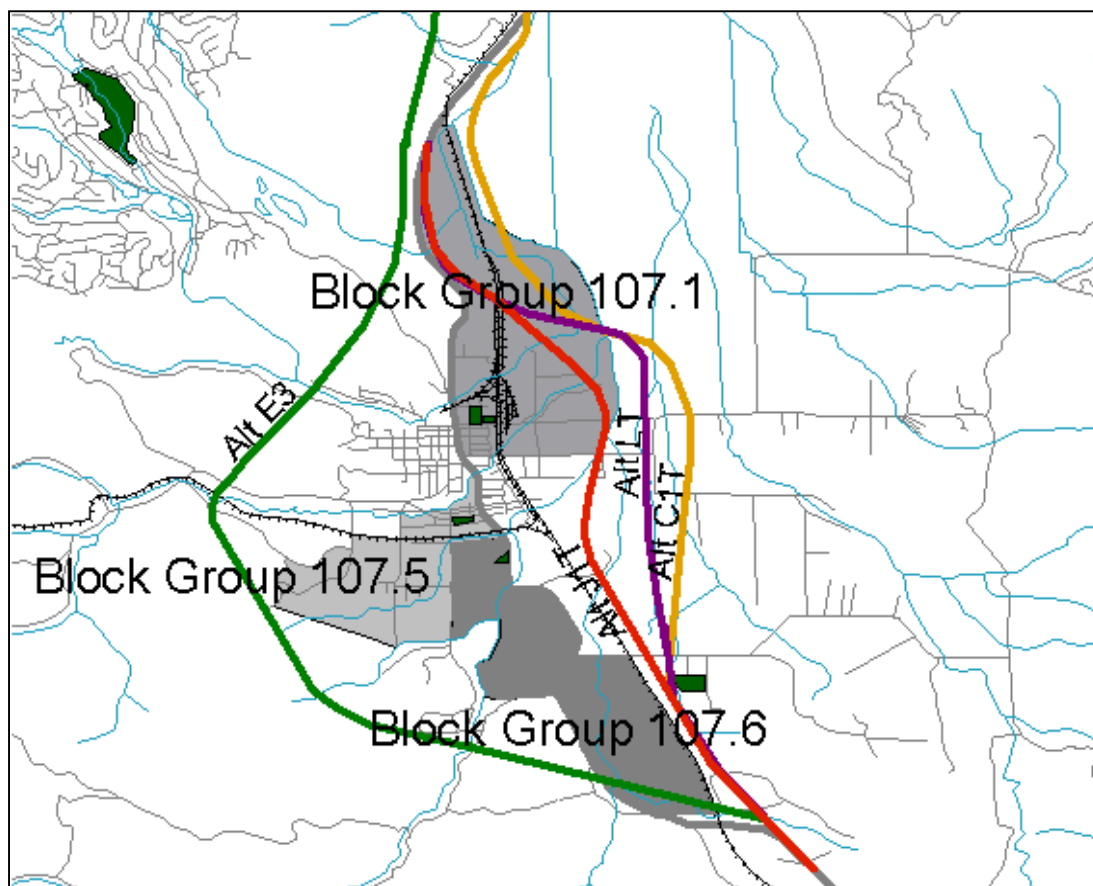
Source: Willits Chamber of Commerce Website, 2000

Note: Trade Area includes four census tracts and includes an are from Willits to Mendocino/Humboldt County border.

According to the Willits Housing Element, in 1990 nearly 14 percent of the population was 65 years of age or older, up from 12.7 percent in 1980. The aging of the population, while slight during the 1980s is expected to accelerate in the future. The Department of Finance (DOF) estimates that between 1990 and 2020, the number of persons in Mendocino County age 65 and older will increase more than twice as fast as the population as a whole. The median age of residents of Willits was between 30 and 34 years of age in 1990. This was consistent with the median age of residents of Mendocino County in 1990, which was 35 years of age.

In 1990, 84 percent of the population in Willits was classified as non-Hispanic white. By 1996, the proportion of non-Hispanic white residents declined to about 78 percent. The remainder of the population was primarily composed of white Hispanic and American Indian residents. The Sherwood Valley Band of Pomo Indians of California has a rancheria and casino west of Willits near S.R. 20 (see Volume II, Atlas Map 2).

The proportion of minority residents in Census Tract Block Groups 107.1 and 107.5 were 21.5 percent and 17.1 percent, respectively (Figure 4-2). Given the proportions of minority residents elsewhere in the affected area, these block groups have considerably higher proportions of minority residents. “Considerably higher” in this context means that the proportion of minority residents in these block groups was at least one standard deviation (4.3 percent) greater than the average proportion of minority residents.

**Figure 4-2. Census Tract Block Groups 107.1, 107.5, and 107.6****4.5.3 Housing Characteristics**

Since the DOF information is presented by jurisdiction, housing estimates are presented for both Willits and Mendocino County but not for the greater Willits trade area or the Little Lake Valley. Table 4-7 presents a summary of housing characteristics based on DOF projections and the Caltrans Draft Relocation Impact Report (DRIR) (1999).

**Table 4-7. Housing Characteristics**

<b>Characteristics</b>	<b>Willits</b>	<b>Mendocino County</b>
Total Housing Units	2,012	37,112
Single Family Units	1,239	26,465
2+ Units	611	4,945
Mobile Homes	162	5,702
% Owner Occupied	46.40%	56.2%
Vacancy Rate	03.18%	09.74%
Persons Per Units	2.617	2.537
Median Housing Value (1996)	\$112,570	\$123,900

Sources: Department of Finance Estimates, 1999 and Caltrans Draft Relocation Impact Report, 1999

Note: All figures are 1999 unless noted.

In 1999, DOF estimated there were 2,012 housing units within Willits, an increase of only 44 units from the 1990 census. Of the 2,012 housing units in Willits, 1,239 are single-family units and 162 are mobile homes (Map 11). The remaining units are multi-family dwellings of 2+ units per building.

There are four mobile home parks within the project area, including: Wagon Wheel Mobile Home Park, located at 1750 South Main Street; Parkside Mobile Home Park, at 19401 Walker Road; Valley Oaks Mobile Home Park located east of Alternative C1T at 2101 Valley Road; and Grange Mobile Home Park located at 20 Pine Street in Willits. Two mobile home parks -- the EZ Living Mobile Home Park, located at 19925 North Highway 101, and the Little Lake Mobile Home Park, located at 24800 North Highway 101 -- are adjacent to the proposed project.

Some of the residential units in Willits share characteristics of both multi-family and single-family dwellings. These small, densely grouped units resemble “bungalows” rather than traditional single-family units or apartments. In some cases, they share common walls and in other cases they are stand-alone. They are not located on separate parcels, however, and are rented to multiple tenants by a common owner. For the purposes of this report, these “bungalows” are referred to as multi-family dwellings.

Several figures from the Willits General Plan Housing Element and the DOF projections suggest a “tight” housing market. First, the DOF vacancy rate is projected to be 3.18 percent of the total housing units. This is compared to a

countywide vacancy rate average of 9.74 percent. Willits also has a persons-per-household rate of 2.61, which is the highest in the county for any incorporated area.

Willits has historically had a relatively low proportion of home ownership. In 1990 only 48 percent of the City's housing units were owner occupied. In 1999, only 46.4 percent were estimated to be owner occupied. The Willits Housing Element attributes the low home ownership rate, at least partially, to a decrease in "income adequacy on the part of Willits residents."

The DRIR identifies areas of affordable housing along Hollands Lane in Willits. The DRIR also identifies most of the mobile home units located in mobile home parks in the affected area as affordable housing.

In 1996, the median housing value was estimated at \$112,570. Increases in home prices combined with income and supply inadequacies have created a housing affordability problem in Willits. The Housing Element indicates this problem can be addressed by increasing the supply of affordable housing units and facilitating the creation of jobs to enhance the ability of residents to pay for housing.

Under existing zoning, a maximum of 1,631 additional dwelling units could be built, including 1,208 multi-family units. None of the developable land within the city is currently designated for use as a mobile home park.

#### **4.5.4 Employment and Income Characteristics**

The fastest growing employment sectors in Willits are those with relatively low wage rates, such as retail trade and services. Based on the latest available data (1997) from the Employment Development Department, 2,280 people were employed in different sectors of the economy in 1997, and the unemployment rate was estimated at 7.8 percent. For comparison, the 1997 unemployment rates for Mendocino County, California, and the United States were 7.9 percent, 6.3 percent, and 4.7 percent, respectively.

Based on the latest data available (1996), per capita income for Willits was \$12,735 and the average household income was \$33,250 with nearly \$15,000 worth of annual household retail and service expenditures.

U.S. Census Tract Block Groups 107.5 and 107.6 have proportions of low-income residents that are significantly higher than the average for the affected area (23.8 percent and 22.5 percent, respectively) (Figure 4-2).

## 4.6 Economics

### 4.6.1 Existing Economic Setting

The Willits trade area consists of four census tracts, which include the communities of Brooktrails, Pine Mountain, Leggett, Laytonville, Covelo, and Willits. Table 4-8 shows the population of Willits and its trade area. The Willits trade area includes 7,400 households, with an average annual household income of almost \$33,250 of which nearly \$15,000 is spent on annual retail and service expenditures. Residents of the trade area who live outside of Willits in the unincorporated area make up approximately 25 percent of the non-tourist business with the city.

**Table 4-8. Willits/Trade Area Population**

Year	Population within City Limits	Population in the Greater Willits Area	Total Population in the Willits Trade Area
1980	3,706	9,935	13,641
1990	5,027	13,155	18,182
1996	5,402	14,213	19,615

Source: Willits Chamber of Commerce, 1999.

### ***Major Types of Economic Activities***

The economy of Willits is characterized by strong retail sales, stable government finances, and a growing labor market. The city functions as a subregional commercial center serving a market area of over 19,600 people.

An increasingly significant role in the local economy is played by retail sales. Nearly one in four nonagricultural jobs is in the retail trade sector. Taxes generated through retail trade constitute the largest component of local government revenue. Table 4-9 shows the number of retail stores by type, number of permits, and total taxable sales for Willits in 1997.

**Table 4-9. Taxable Transactions in Willits**

Type of Retail Store	Permits on January 1, 1998	Total Taxable Sales (1,000 of dollars)
Apparel Stores	5	374
General Merchandise Stores	3	Not Released
Food Stores	12	10,714
Eating and Drinking Establishments	36	9,353
Home Furnishing & Appliances	9	1,457
Bldg. Materials & Farm Equipment	13	13,162
Auto Dealers & Auto Supplies	10	8,187
Service Stations	6	10,175
Other Retail Stores	56	11,247
Retail Stores Total	150	64,669

Source: Board of Equalization, 1999

Applying a sales tax rate of 7.25 percent to the total taxable sales, the retail sales tax revenue from the Willits area would amount to about \$4.7 million. Of this amount, the revenue actually distributed to the City of Willits was \$803,574 in 1997. Sales tax revenue provides approximately one-third of the total City budget, which is indicated by the 1998-1999 budget of \$2.5 million, \$872,800 of which is estimated to come from the sales tax revenue.

### ***Business Activity Along U.S. 101***

Willits has a wide variety of businesses serving the needs of the local trade area residents as well as those of travelers. A visual survey conducted by Caltrans staff in December of 1998, determined that there were approximately 188 businesses along U.S. 101 within the city limits. More than half of these businesses (122) provide services primarily to local residents and the greater Willits market area rather than visitors or tourists. The survey ensures that the businesses considered in the study area are those that have visual exposure to through traffic on the existing route and are, therefore, most likely to be impacted by the bypass alternatives. Table 4-10 classifies the existing businesses along U.S. 101 within the city limits according to the findings of the visual survey.

**Table 4-10. Count and Classification of Businesses Along U.S. 101 Through Willits**

Category	# of Businesses Along U.S. 101	Percent
Local Professional	28	15%
Local Retail	44	23%
Other Local Services	48	26%
Restaurant	25	13%
Fast Food	6	3%
Gasoline	8	4%
Convenience (no gas)	1	1%
Hotel/Motel	11	6%
Gift/Variety Shops	15	8%
Other Tourist Services	2	1%
Total	188	100%

Source: Visual survey by Caltrans staff, 1999

The first three categories of Table 4-10 refer to businesses that provide goods or services primarily to local area residents (i.e., residents in the Willits trade area). Examples of businesses in these categories include accounting, medical and legal professionals; hardware, home, and grocery shops; automobile services; and beauty salons. Sixty four percent of the businesses from the survey along the existing route were local businesses. The next four categories refer to businesses that provide goods or services to both local area residents and tourists. Examples of such businesses include traditional and fast food restaurants, gasoline stations, and convenience stores. These businesses comprise 21 percent of those found in the visual survey. Finally, the last three categories refer to businesses that provide goods or services primarily to tourists. Examples of businesses in these categories include hotels, motels, gift and variety shops, and camping/RV businesses. These categories comprise 15 percent of those found in the visual survey.

For perspective, the number of retail store permits in Willits was 150 on January 1, 1998 (see Table 4-9). The survey of businesses along U.S. 101 through the business district revealed 118 retail stores, or 77 percent of the total retail stores in the entire City of Willits. Of the 118 retail stores along U.S. 101, 26 of them, or 17 percent, appeared to cater primarily to tourists or both tourists and area residents.



The downtown business district can be evaluated in two distinct sections (Map 12). The first section, referred to locally as the “Miracle Mile,” is the section of U.S. 101 north from the southern city limits to the S.R. 20 intersection. This section of the business district is visible to north-south traffic along U.S. 101 as well as traffic between Ft. Bragg and areas south of Willits. This is considered the prime location for commercial retail establishments due to the high visibility to out-of-town travelers. The second section is U.S. 101 north of S.R. 20 to the northern city limits.

The survey of businesses along U.S. 101 through Willits indicated that the percent of businesses engaged in tourist trade along the Miracle Mile is not dramatically different from the northern stretch of the route through town (Table 4-11). Therefore, regardless of the specific bypass design, Caltrans studies do not anticipate a disproportionate change in business activity along the Miracle Mile relative to the northern section.

**Table 4-11. Concentration of Businesses Along U.S. 101 by Location and Type**

Location	Local	Local & Tourist	Tourist
All Business	64 %	21%	15%
Miracle Mile Business	59%	24%	17%
North Section Business	68%	19%	13%

Source: Willits Economic Survey Report, Caltrans, 1999

## 4.7 Water Resources

### 4.7.1 Surface Water Hydrology

Elevation within the project area ranges from 1,010 m (3,320 ft) in the surrounding hillsides to 400 m (1,320 ft) on the Little Lake Valley floor. The valley itself is relatively level, with an average slope from south to north of 0.25 percent. All surface waters from the project area enter into Outlet Creek, a major tributary of the Eel River basin above its confluence with the Middle Fork of the Eel River. The Little Lake Valley watershed is approximately 194 square km (75 square miles [sq mi]). Little Lake Valley is contained within the 422 square km (163 sq mi) Outlet Creek Hydrologic Shed Area (HSA). The HSA is located within the Eel River Hydrologic Unit (HU), with a total area of 9,360 square km (3,614 sq mi). The Eel

River flows northward through Humboldt County, where it discharges to the Pacific Ocean.

The northwestern portion of California has a mild and wet climate. Annual average precipitation in the Little Lake Valley is about 1,350 mm (53 in). Most precipitation occurs during low intensity winter and spring rains. A small amount of snow falls on higher elevations.

There are numerous seasonal creeks that flow from the surrounding hills into Little Lake Valley, converging at the north end in a poorly drained, marshy area to form Outlet Creek (Map 14). Following heavy rainfall events, a small lake forms in the northern part of Little Lake Valley, and is present for most of the wet season (Map 19).

Streams on the Little Lake Valley floor characteristically have flatter gradients and broader channel widths than in the surrounding foothills, and substrates consisting of sand- and silt-sized particles. Stream bank stability is low, particularly where livestock are present. On the west side of the valley, stream reaches with valley floor characteristics include Haehl Creek, and the lower sections of Baechtel, Broaddus, Mill, and Upp Creeks as they merge and form Outlet Creek.

In the foothills, streams consist largely of narrow, deep pools and shallow runs and riffles with predominantly gravel and cobble substrates. On the south and west side of the valley, the streams with these characteristics include Upper Haehl Creek, and the middle parts of Baechtel, Broaddus, Mill, and Upp Creeks.

Due to the seasonal nature of precipitation, flow fluctuates significantly from the high flow periods (December to May) to the low flow periods (June to November). During dry years, Outlet Creek may have no flow.

#### **4.7.2 Groundwater Hydrology**

An estimated 74 million m<sup>3</sup> (60,000 acre ft) of groundwater are available in Little Lake Valley, while the recharge rate is estimated at 12.3 million m<sup>3</sup> (10,000 acre ft) per year. The groundwater depth is generally less than 4.6 m (15 ft) below the valley floor. Drawdown has been an issue in the valley since the 1940s, and the Little Lake Water District has implemented a drawdown ordinance.

### 4.7.3 Regional Water Quality

The State of California, in accordance with Section 303(d) of the Clean Water Act, has submitted to the U.S. Environmental Protection Agency (USEPA) a draft list of impaired waters. Within the Eel River watershed, the Eel River, including its north, south and middle forks have been listed as impaired due to temperature and sediment/siltation concerns. Total maximum daily pollutant loads (TMDLs) have not been adopted at this time but are anticipated to be in place prior to implementation of any build alternative.

Outside of the sediment and temperature concerns in the Eel River basin, water quality is generally good. The area is lightly populated, with little industry. Vineyards, cattle grazing, and roads are the major man-made sediment impacts to the ambient surface water quality, although a large majority of erosion attributed to roads is associated with logging and other unpaved roads.

USEPA has developed an Index of Watershed Indicators (IWI) in an effort to present information on the overall aquatic health of specific watersheds. The IWI lists the Upper Eel River watershed as having “Less serious problems – low vulnerability.” Water quality data that were collected from 1992 through 1997 just upstream of the confluence of Outlet Creek and the Eel River indicate the waters meet or exceed the Basin Plan objectives (excluding temperature and sediments) and, in most cases, organics and inorganics of concern are below detection limits.

## 4.8 Floodplain Encroachment

Little Lake is a seasonal lake located in the Willits-Little Lake Valley basin. The lake is fed by many tributaries and has its outlet through Outlet Creek. Because of a natural constriction where Outlet Creek flows from the basin, a substantial backwater forms to create Little Lake during periods of extended rainfall. The flood of December 1964 raised the lake levels to an elevation of approximately 407 m (1335 ft). At this elevation, Little Lake inundates an area of about 890 ha (8.9 km<sup>2</sup> or 2200 ac) and has a storage capacity of approximately twenty-seven million m<sup>3</sup> (22,000 acre feet). Major floods have occurred in 1955, 1964, and 1974. Localized flooding is generally related to debris and/or erosion problems within the creeks.

There are numerous streams that discharge into Little Lake Valley (Map 14). Listed in Table 4-12 are the seven largest streams, their drainage areas, and their estimated 100-year peak discharges.

**Table 4-12. Drainage Area and 100-Year Peak Discharge**

<b>Creek</b>	<b>Drainage Area square kilometers (square miles)</b>	<b>100-Year Peak Discharge cubic meters per second (cubic feet per second)</b>
Baechtel Creek, Above confluence w/ Haehl Creek	35.74 (13.8)	110.4 (3,900)
Broaddus Creek, Above confluence with Baechtel Creek	20.46 (7.9)	74.2 (2,620)
Davis Creek At Hearst-Willits Road	38.33 (14.8)	123.5 (4,360)
Haehl Creek, Above confluence w/ Baechtel Creek	28.23 (10.9)	80.4 (2,840)
Mill Creek, At downstream City of Willits corporate limits	25.12 (9.7)	90.3 (3,190)
Berry Creek Near Reynolds Highway	7.77 (3.0)	30.0 (1,060)
Outlet Creek At Highway 101 Bridge	Not Determined	764.5 (27,000)

Source: Location Hydraulics Study, Caltrans, 2000

The Federal Emergency Management Agency (FEMA) conducted studies of the Little Lake Valley Floodplain in support of their National Flood Insurance Program. The Flood Insurance Studies investigated the existence and severity of flood hazards in the City of Willits and the surrounding unincorporated areas. To estimate the 100-year water surface elevation of the major streams in the Little Lake Valley, a technique developed by ACOE was used to model the streams. This information, as well as high water data obtained by ACOE during the 1964 flood, was used to determine the base floodplain. The base floodplain is depicted on Flood Insurance Rate Maps (FIRM) for Mendocino County (Community-Panel Numbers 060183 0587C, 060183 0589B, and 060183 0600B) and the FIRM for the City of Willits (Panel 060187 0001C) (Map 14).

Floodways were determined by FEMA for the portions of Mill, Broaddus, and Baechtel Creeks located within the City of Willits. Floodways were not determined by FEMA for these three creeks outside of the Willits city limits. A floodway area was also determined for Davis Creek, from the Hearst-Willits Road bridge to approximately 1.6 km (1.0 mi) upstream. A floodway is the channel of a stream, plus any adjacent floodplain areas, which must be kept free of encroachment so that a 100-year flood event can be carried without substantial increase in flood elevations. Floodways generally follow creek drainages in the Little Lake Valley.

## **4.9 Biological Resources**

Little Lake Valley and the surrounding foothills consist of a wide variety of topographic, hydrologic, and edaphic (soil) conditions, which supports a number of habitat types and provide habitat for a diversity of biological communities (see Maps 15 through 19).

### **4.9.1 Natural Communities**

The natural plant communities and wildlife habitats of the valley bottom include extensive wetland habitats, including wet meadows, marshes, and riparian woodlands; however, much of the wetland vegetation has been altered by farming and urban development. Large expanses of these habitat types are unusual in the North Coast Range because wide graben-type valleys, like Little Lake Valley, with poor drainage are uncommon. Because they are regionally uncommon, these extensive wetland and riparian habitats in the project area have become particularly important to migrating waterfowl and other wildlife species. In the hills surrounding Little Lake Valley, the vegetation is typical of the grasslands, woodlands, and forests of the North Coast Range and is relatively undisturbed.

A number of wildlife species will use plant communities occurring in the project area for foraging, breeding and resting. Table 4-13 lists the estimated area of the habitats on the floor of Little Lake Valley excluding foothill habitat areas that surround the valley floor.

**Table 4-13. Habitat Areas on the Floor of Little Lake Valley**

Habitat Formation	Approximate Area [ha (ac)]
Wooded riparian	320 (791)
Wet meadow	1,050 (2,594)
Marsh	240 (593)
Grassland	650 (1,606)
Oak woodland	40 (99)
Total	2,300 (5,683)

Source: Supplemental Natural Environmental Study, Caltrans, 2000

Note: Foothill habitats are not included in this table.

The general natural communities (habitats) identified above can be subdivided further into approximately 31 plant communities, which were identified in the study area and listed in Table 4-14. Several plant communities and habitats in the study area are regulated (e.g., wetlands under Section 404 of the Clean Water Act) or support special biological values, including wet meadow, marshes, riparian woodlands, oak woodlands, and vernal pools/swales.

Hay and residential meadows are disturbed or cultivated communities, portions which are jurisdictional wetlands that are common in Little Lake Valley. These provide marginal wetland functions and values.

Garry and black oak woodlands are locally and regionally common woodlands in the study area. These oak woodland areas provide important biological and aesthetic values, including food sources, roosting and nesting sites for wildlife, habitat diversity, and visual diversity.

Several plant communities in the study area were identified as sensitive and included native bunchgrass grasslands, riparian scrub and woodlands, wet meadow, marshes, vernal pools, swales, and other waters of the U.S. (streams).

**Table 4-14. Plant Communities in the Willits Bypass Project Area**

Formation	Plant Community	Section 404 Jurisdiction <sup>a</sup>	Sensitive Natural Community <sup>b</sup>
Grassland	Annual grassland		
	Pasture grassland		
	Native bunchgrass grassland		X
	Old field grassland		
	Dryland farmed grassland		
Oak woodland	Garry oak woodland		

Formation	Plant Community	Section 404 Jurisdiction <sup>a</sup>	Sensitive Natural Community <sup>b</sup>
	Black oak woodland		
Wooded riparian	Mixed riparian woodland	X	X
	Ash riparian woodland	X	X
	Valley oak riparian woodland	X	X
	Valley oak–ash riparian woodland	X	X
	Willow riparian scrub	X	X
	Mixed riparian scrub	X	X
	Montane riparian woodland	X	X
Forest	Mixed north-slope forest		
	Douglas-fir forest		
	Mixed conifer forest		
	Mixed evergreen forest		
Chaparral	Northern mixed chaparral		
	Manzanita chaparral		
Marsh	Mixed marsh	X	X
	Cattail marsh	X	X
	Tule marsh	X	X
Meadow	Wet meadow	X	X
	Hay meadow	X	
	Residential meadow	X	
	Dry meadow		
Vernal pool	Vernal pool	X	X
Swale	Swale	X	X
Stock pond	Stock pond/open water	X	
Other waters	Other waters (creeks/channels)	X	X

Source: Supplemental Natural Environmental Study, Caltrans, 200

Notes:

a = Jurisdictional wetland communities

b = Communities that are either naturally rare, substantially diminished by human activities, have particularly high ecological and human amenity values, or are targeted for protection by state or federal laws and policies (e.g., wetland resources).

## 4.9.2 Threatened And Endangered Species And Species Of Concern

This section provides an overview of the special-status species that are known to occur or may occur within the project area.

### 4.9.2.1 Special-Status Plants

Fourteen special-status plants were identified as potentially occurring in the project region. Table 4-15 identifies these special-status plants. Of these species, three were

located during the floristic studies conducted in 1997, including one state-listed species and two other sensitive species (Map 15):

- Baker's meadowfoam (*Limnanthes bakeri*), a federal species of concern and state listed as rare, was widespread in Little Lake Valley and was located along Alternatives C1T, J1T, and LT.
- Glandular western flax (*Hesperolinon adenophyllum*), a federal species of concern and a California Native Plant Society (CNPS) List 1B species, was located along Alternative E3.
- Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*), a CNPS List 1B species, occurs in the project area but would not be impacted by any of the build alternatives.

#### 4.9.2.2 Special-Status Wildlife and Fish Species

Thirty special-status wildlife and fish species were identified as occurring or potentially occurring in the project region (see Maps 16 and 17). The status and potential for occurrence of special-status wildlife and fish species are summarized in Tables 4-16 and 4-17, respectively. Of these wildlife and fish species, 18 were observed in the project area. Seven of these species are listed as threatened or endangered, or are candidates for listing, the Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), steelhead (*O. mykiss*), northern spotted owl (*Strix occidentalis caurina*), bald eagle (*Haliaeetus leucocephalus*), American peregrine falcon (*Falco peregrinus anatum*), and little willow flycatcher (*Empidonax traillii brewsteri*); and 11 are species of special concern, which are the foothill yellow-legged frog (*Rana boylei*), Northwestern pond turtle (*Clemmys marmorata marmorata*), osprey (*Pandions haliaetus*), white-tailed kite (*Elanus caeruleus*), Northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperi*), sharp-shinned hawk (*Accipiter striatus*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), California yellow warbler (*Dendroica petechia brewsteri*), and yellow-breasted chat (*Icterias virens*).

In addition, the remains of another special-status species, the red-tree vole (*Arborimus pomo*), were found in the *project* area near the nest of a Northern spotted owl. It could not be determined if the owls captured the voles within the project area or outside the project area.



Non-special-status raptors observed nesting in the project area were red-tailed hawk and red-shouldered hawk (see Map 16 and 17). Special-status species that may be affected by the project include:

**Table 4-15. Special-Status Plants Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area**

Common Name and Scientific Name	Status* Federal/ State/ CNPS	Geographic Range	Habitat	Potential to Occur within the Project Area**
Federal and State Listed Species				
Roderick's fritillary <i>Fritillaria roderickii</i> ( <i>F. biflora</i> var. <i>biflora</i> )	--/E/1B	Limited area in central Mendocino County	Grasslands and oak woodlands, generally near the coast	very low
Burke's goldfields <i>Lasthenia burkei</i>	E/E/1B	Lake, Mendocino, and Sonoma Counties	Wet meadows and vernal pools	very low
Baker's meadowfoam <i>Limnanthes bakeri</i>	SC/R/1B	Mendocino County, including Little Lake Valley and near Laytonville	Vernal pools, swales, other seasonal wetlands	present
Milo Baker's lupine <i>Lupinus milo-bakeri</i>	SC/T/1B	Colusa and Mendocino Counties; reported from U.S. 101 near Longvale [5 km (3 mi.) north of Little Lake Valley]	Oak and mixed evergreen-oak-conifer forests; frequents roadsides and similar disturbed areas	moderate
Hoover's semaphore grass <i>Pleuropogon hooverianus</i>	SC/R/1B	Mendocino, Marin, Sonoma Counties	Marshes, meadows, and other types of seasonal wetlands where water ponds during the wet season	low
Showy Indian clover <i>Trifolium amoenum</i>	E/--/1B	Historically in Coast Range from Santa Clara to Mendocino Counties; now known only in Sonoma County	Grassland, oak woodland	low
Other Special-Status Species				
Livid sedge <i>Carex livida</i>	--/--/1A	Reported from coast of Mendocino County, Oregon, and Washington; last seen in California in 1866	Marshes and swamps	very low
Glandular western flax <i>Hesperolinon adenophyllum</i>	SC/--/1B	North and central Coast Range, especially Lake and Mendocino Counties	Serpentine soils in chaparral and grasslands	present
Thin-lobed horkelia <i>Horkelia tenuiloba</i>	SC/--/1B	Marin, Mendocino, and Sonoma Counties	Mesic openings in chaparral	low
Mendocino bush-mallow <i>Malacothamnus mendocinensis</i>	SC/--/1A	Known only from near Ukiah; last seen in 1938	Open banks in oak woodland	very low
Baker's navarretia <i>Navarretia leucocephala</i>	--/--/1B	Interior north Coast Ranges and western Sacramento Valley	Oak woodlands, conifer forests, wet meadows, grasslands, vernal pools	present

**Table 4-15. Special-Status Plants Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area**

Common Name and Scientific Name	Status* Federal/ State/ CNPS	Geographic Range	Habitat	Potential to Occur within the Project Area**
ssp. <i>Bakeri</i>				
<b>Gairdner's yampah</b> <b><i>Perideridia gairdneri</i></b> <b>ssp. <i>gairdneri</i></b>	SC/--/4	Known from the coast from Kern to Mendocino County	Broadleaf forest, chaparral, grasslands, vernal pools	very low
Nuttall's pondweed <i>Potamogeton epihydrus</i> ssp. <i>Nuttallii</i>	--/--/2	Coast Ranges of Mendocino County, Several Sierra Nevada Counties; Oregon and Washington	Marshes, swamps, slow moving streams, ponds, lakes, and irrigation ditches	high
Beaked tracyina <i>Tracyina rostrata</i>	--/--/1B	Humboldt, Lake, and Sonoma Counties	Oak woodlands, hardwood forest, open grassy areas, probably areas where soil surface is visible (i.e., no thatch layer, bare sterile ground, and roadcuts)	low

## Status explanations:

## Federal

E = listed as endangered under the Endangered Species Act (federal).

SC = species of concern

## State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

R = listed as rare under the California Native Plant Protection Act.

Source: SNES, Caltrans, 2000

## California Native Plant Society

List 1A = species presumed extinct in California.

List 1B = species rare, threatened, or endangered in California and elsewhere.

List 2 = species rare, threatened, or endangered in California but more common elsewhere.

List 3 = species about which more information is needed to determine their status.

List 4 = species of limited distribution.

\*\*Probability based on information available after field surveys were conducted: proximity of nearest occurrences, the geographic extent of the species, and suitability of habitats in the Willits project area

**Bolded text is meant to emphasize species with federal protection.**

**Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area**

Species: Common Name Latin Name	Status* Federal/ State	California Distribution	Habitats	Potential to Occur within the Project Area
Federal and State Listed Species				
<u>Birds</u> <b>Marbled murrelet</b> <i>Brachyramphus marmoratus</i>	T/E	Nesting sites from the Oregon border to Eureka and between Santa Cruz and Half Moon Bay; winters near shore and offshore along the entire California coastline	Mature, coastal coniferous forests for nesting; forages in nearby coastal water and nests in conifer stands greater than 150 years old and may be located up to 56 km inland	Species surveyed for but not observed in project area: no suitable habitat present for this species.
Marbled murrelet Critical Habitat			Critical Habitat is USFWS designated areas essential to marbled murrelet's survival and is concentrated on defined large, contiguous blocks of late-successional forest lands along the coastal Pacific Northwest.	Designated Critical Habitat does not occur in the project area
American peregrine falcon <i>Falco peregrinus anatum</i>	D/E	Permanent resident on the north and south Coast Ranges; may summer on the Cascade and Klamath Ranges south through the Sierra Nevada to Madera County; winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large populations of other bird species	Species observed in project area
<b>Bald eagle</b> <i>Haliaeetus leucocephalus</i>	PR/E	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe area; winter range over most of California except the southeastern deserts and high altitudes in the Sierras	In western North America, nests and roosts in coniferous forests within 1.5 km (0.9 mi) of a lake, reservoir, river, or the ocean	Species observed in project area

**Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area**

<b>Species: Common Name Latin Name</b>	<b>Status* Federal/ State</b>	<b>California Distribution</b>	<b>Habitats</b>	<b>Potential to Occur within the Project Area</b>
<b>Northern spotted owl</b> <i>Strix occidentalis caurina</i>	T/--	A permanent resident throughout its range; found in the north Coast, Klamath, and western Cascade Ranges, from Del Norte to Marin Counties	Dense, old-growth forests dominated by conifers, with topped trees or oaks available for nesting crevices	Species observed in project area
Northern spotted owl Critical Habitat			Critical Habitat is USFWS designated areas essential to the northern spotted owl's conservation and applies solely to the owl's habitat units on federal lands	Designated Critical Habitat does not occur in the project area
<b>Little willow flycatcher</b> <i>Empidonax traillii brewsteri</i>	SC/E	Central and northern California along the Coast Range from Santa Barbara County north to Oregon	Nests in riparian areas and often forages in adjacent open areas and meadows	Species observed in project area: known only as a migrant in the area
<b>Other Special-status Species</b>				
<u>Birds</u> Cooper's hawk <i>Accipiter cooperi</i>	--/SCS	Throughout California except high altitudes in the Sierra Nevada; winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range; permanent residents occupy the rest of the state	Nests primarily in riparian forests dominated by deciduous species and in densely canopied forests and forages in open woodlands	Species observed in project area
<b>Northern goshawk</b> <i>Accipiter gentilis</i>	SC/SCS	Permanent resident on the Klamath and Cascade Ranges, the north Coast Ranges from Del Norte to Mendocino Counties, and in the Sierra Nevada south to Kern County; winters in Modoc, Lassen, Mono, and northern Inyo Counties; rare in southern California	Nests and roosts in red fir, Jeffrey pine, and lodgepole pine forests; hunts in forests and forest clearings and meadows	Species surveyed for but not observed in project area

**Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area**

<b>Species: Common Name Latin Name</b>	<b>Status* Federal/ State</b>	<b>California Distribution</b>	<b>Habitats</b>	<b>Potential to Occur within the Project Area</b>
Sharp-shinned hawk <i>Accipiter striatus</i>	--/SCS	Permanent resident in the Sierra Nevada, Cascade, Klamath, and north Coast Ranges at mid-elevations, as well as along the coast in Marin, San Francisco, San Mateo, Santa Cruz, and Monterey Counties; winters over the rest of the state except very high elevations	Dense-canopy ponderosa pine or mixed conifer forest and riparian habitats	Species observed in project area
<b>Golden eagle</b> <i>Aquila chrysaetos</i>	PR/SCS,FP	Mountains and foothills throughout California	Cliffs and escarpments or tall trees for nesting; forages in grasslands, chaparral, and oak woodlands	Species observed in project area
Northern harrier <i>Circus cyaneus</i>	--/SCS	North and central coast, central valley, and northeastern California and has been recorded on the eastern side of the Sierra Nevada mountains during winter	Grasslands, meadows, marshes, and seasonal and agricultural wetlands providing tall cover	Species observed in project area
California yellow warbler <i>Dendroica petechia brewsteri</i>	--/SCS	Nests over most of California except the Central Valley, the Mojave Desert region, and high elevations in the Sierra Nevada; winters along the Colorado River and in parts of Imperial and Riverside Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders, or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Species observed in project area
White-tailed kite <i>Elanus caeruleus</i>	--/CP	Lowland areas west of Sierra Nevada from northern Sacramento Valley south and coastal valleys and foothills to western San Diego County	Low foothills or valley areas with valley or live oaks, riparian areas, and marshlands near open grasslands for foraging	Species observed in project area
Prairie falcon <i>Falco mexicanus</i>	--/SCS	Resident throughout California	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large populations of other bird species	Species observed in project area

**Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area**

<b>Species: Common Name Latin Name</b>	<b>Status* Federal/ State</b>	<b>California Distribution</b>	<b>Habitats</b>	<b>Potential to Occur within the Project Area</b>
Yellow-breasted chat <i>Icterus virens</i>	--/SCS	Uncommon migrant in California; nests in a few locations with appropriate habitat such as Sweetwater Creek, El Dorado County; along the Russian River, Sonoma County; Little Lake Valley, Mendocino County; and Putah Creek, Yolo County	Nests in dense riparian habitats dominated by willows, tall weeds, blackberry vines, and grapevines	Species observed in project area
<b>Osprey</b> <i>Pandion haliaetus</i>	SC/SCS	Found in northern California primarily in the Coast Range and also in the Klamath and western Cascade Ranges	Found adjacent to lakes, rivers, coastal marine, and estuary habitats	Species observed in project area
<u>Mammals</u> <b>Pacific fisher</b> <i>Martes pennanti pacifica</i>	SC/SCS	Coastal mountains from Del Norte to Sonoma Counties; east through Cascades to Lassen County, south in Sierra Nevada to Kern County	Mixed conifer habitats with high overstory cover preferring riparian habitat	Species surveyed for but not observed in project area
Red tree vole <i>Arborimus pomo</i>	--/SCS	Occurs along the north Coast Range from Del Norte County south to Sonoma County, California	Inhabits old-growth forest of Douglas-fir, redwood, or montane hardwood-conifer forest	Species could occur in project area: remains of one red tree vole found in pellet of spotted owl nesting in the project area
<b>Townsend's western big-eared bat</b> <i>Corynorhinus townsendii townsendii</i>	SC/SCS	Coastal regions from Del Norte County south to Santa Barbara County	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; sensitive to disturbances and may abandon a roost after on-site visit	Species not surveyed for but may occur in project area
<u>Amphibians</u> <b>Tailed frog</b> <i>Ascaphus truei</i>	SC/SCS	Occurs in California from Del Norte county south to central Sonoma County	old, perennial, swift flowing streams and is associated with mature, old growth forest	Species surveyed for but not observed in project area

**Table 4-16. Special-Status Wildlife Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area**

Species: Common Name Latin Name	Status* Federal/ State	California Distribution	Habitats	Potential to Occur within the Project Area
<b>Northern red-legged frog</b> <i>Rana aurora aurora</i>	SC/SCS	Found along the coast and coastal mountain ranges of California from Del Norte to Mendocino	Permanent and semi-permanent aquatic habitats such as creeks and cold water ponds bordered with grassy or shrubby vegetation; may estivate in rodent burrows or cracks during dry periods	Species surveyed for but not observed in project area
<b>Foothill yellow-legged frog</b> <i>Rana boylei</i>	SC/SCS	Occurs in stream habitat throughout northwestern California, the Coast Range, and the Sierra Nevada foothills	River or creeks in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge usually found near riffles with rocks and sunny banks nearby	Species observed in project area
<b>Olympic salamander</b> <i>Rhyacotriton variegatus</i>	SC/SCS	Occurs in stream habitat throughout northwestern California, the Coast Range, and the Sierra Nevada foothills	River or creeks in woodlands or forests with rock and gravel substrate and low overhanging vegetation along the edge	Species surveyed for but not observed in project area
Reptiles <b>Northwestern pond turtle</b> <i>Clemmys marmorata marmorata</i>	SC/SCS	In California, range extends from Oregon border south along coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of Sierra Nevada	Woodlands, grasslands, and open forests; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms	Species observed in project area

\*Status explanations:

Federal

E = listed as endangered under the Endangered Species Act (federal)

T = listed as threatened under the Endangered Species Act (federal)

PE = proposed endangered under the Endangered Species Act (federal)

D = delisted from the Endangered Species Act (federal), monitored for 5 years

SC = species of concern

PR = protected under the "Bald Eagle Protection Act"

**Bolded text** is meant to emphasize species with federal protection

Source: SNES, Caltrans, 2000

State

E = listed as endangered under the California Endangered Species Act

FP = fully protected under the California Fish and Game Code

SCS = special concern species

CP = fully protected species in California



- Northern spotted owl, a federal listed threatened species, was found during the 1991/92 field surveys and included two nesting pairs located along the northern end of Alternative E3 and near the designated borrow site. The project site is not within an area that is designated as critical habitat for northern spotted owl in the *Final Draft: Recovery Plan for the Northern Spotted Owl* (dated December 1992).
  - California yellow warbler, a state species of special concern, was found on the valley floor during the field surveys and included at least four potential breeding territories. Warblers and their breeding territories were found along Davis, Haehl, and Outlet Creeks near Alternative C1T.
  - Yellow-breasted chat, a state special concern species, was found during the field surveys and included at least ten potential breeding territories. Chats were found along the riparian corridors of Davis, Haehl, Baechtel, Broaddus, and Outlet Creeks near Alternatives C1T, J1T and LT.
  - Red tree vole, a state special concern species, was not observed during the field surveys; however, the remains of one red tree vole were found in a spotted owl pellet (regurgitated prey remains) recovered in the study area, indicating that this species could occur in the project area. Suitable habitat for red tree voles was found along the northern portion of Alternatives E3 and in the designated borrow site area.
  - Foothill yellow-legged frog, a federal species of concern and a state special concern species, was found during field surveys in three streams on Alternative E3, and could be found in all of the streams in the project area.
  - Northwestern pond turtle, a federal species of concern and a state special concern species, was observed at the Willits sewage disposal ponds and in Outlet Creek within all of the alternative alignments. Western pond turtles could occur in all of the streams and ponds in the project area.
  - White-tailed kite, a state fully-protected species under the California Fish and Game Code, were found during the field survey and included two nesting pairs. Both pairs was found on the valley floor with one pair found near Alternative J1T.
  - Townsend's western big-eared bat (*Plecotus townsendii townsendii*), a federal species of concern and a state special concern species, was not surveyed for as part of this project, although the species may occur in the project area. This species roosts in caves, tunnels, and bridges. None of the alternatives of the proposed project are anticipated to remove or impact potential roosting sites such as bridges.
- The locations of special-status wildlife observed in the project study area are provided in Maps 16 and 17.

### ***Special-Status Fish Species***

Outlet Creek, a tributary to the Eel River, receives inflow from several tributaries in the study area, including Davis, Mill, Baechtel, Broaddus, Berry, and Haehl Creeks. These tributary streams originate in the Little Lake Valley watershed surrounding the City of Willits and flow north into Outlet Creek. Three special-status anadromous fish that are listed as threatened or endangered use these streams for migration, spawning, and rearing: coho salmon, fall-run chinook salmon, and steelhead; these would be potentially affected by all the alternatives. Special-status fish species known or having potential to occur in the region are listed in Table 4-17.

Fish habitat types in the Little Lake Valley basin vary and are largely dependent on stream gradient. Above the valley floor, stream gradients are generally steeper, stream channels narrower, water velocities greater, and substrate coarser than in stream reaches on the valley floor. Consequently, streams above the valley floor have a greater variety of depths and water velocities, midstream cover, and range of substrate particle sizes, providing a diversity of microhabitats. Map 20 shows stream sub-reaches identified in the study area that have habitat characteristics relevant to the salmonid populations, including the length, location (valley or foothill), habitat conditions, substrate composition, and record of historical spawning activity.

**Table 4-17. Special-Status Fish Species Known or Having Potential to Occur in the U.S. 101/Willits Bypass Study Area**

Species	Status* Federal/State	California Distribution	Habitats	Potential to Occur within the Project Area
<b>Federal Listed Species</b>				
<b>Tidewater goby</b> <i>Eucyclogobius newberryi</i>	E/SCS	From San Diego County north to the Smith River, along coastal California	Shallow coastal lagoons and lower stream reaches with brackish water utilizing marshy habitats where they can avoid high winter flows	Tidewater goby would not occur since project area lacks coastal lagoon habitat type, which is necessary to support this species
<b>Central California Coast coho salmon</b> <i>Oncorhynchus kisutch</i>	T/SCS	From Punta Gorda, California, south to San Lorenzo River, California and is a distinct Evolutionarily Significant Unit	Low gradient coastal streams with cool water temperatures; juveniles utilize deep pools with woody debris and after 1 year in freshwater, juveniles migrate to the ocean and spend 1-3 years in saltwater; adults return to natal streams to spawn	Species would not occur in project area since the Eel River drainage is north of Punta Gorda, California
<b>Southern Oregon/Northern California coho salmon</b> <i>Oncorhynchus kisutch</i>	T/SCS	From Cape Blanco, Oregon south to Punta Gorda, California and is a distinct Evolutionarily Significant Unit	Coastal rivers with cool water temperatures; juveniles spend up to 15 months in fresh water utilizing deep pools with woody debris and migrate to the ocean and spend 1-3 years in saltwater; adults return to natal streams to spawn	Species historically observed in the project area
<b>Central California steelhead</b> <i>Oncorhynchus mykiss</i>	T/SCS	From Russian River in Mendocino County south to Soquel Creek in Santa Cruz County	Cold, clear water with clean gravel of appropriate size for spawning; juveniles migrate to ocean after spending 1-4 years in freshwater	Species would not occur in project area since the Eel River drainage is north of Russian River
<b>Southern Oregon/California Coast chinook salmon</b> <i>Oncorhynchus tshawytscha</i>	T/--	From Cape Blanco, Oregon south to Punta Gorda, California	Cold, clear water with clean gravel of appropriate sizes for spawning; migrate to ocean after spending one growing season in freshwater	Species observed in the project area

Federal Candidate Species				
Coastal cutthroat trout <b><i>Oncorhynchus clarki clarki</i></b>	C/SCS	Coastal streams from Seward, Alaska to the Eel River, California; in the Eel River, they occur upstream to Fortuna, California	Small, low gradient coastal streams and estuarine habitats utilizing pools with fallen logs, undercut banks, and boulders for cover; some juveniles migrate to ocean their first year while others spend up to 5 years in freshwater	Species would not occur in project area since Little Lake Valley is more than 60 mi upstream of Fortuna, California
Northern California steelhead <b><i>Oncorhynchus mykiss</i></b>	C/SCS	From Redwood Creek in Humboldt County south to the Gualala River in Sonoma and Mendocino Counties	Cold, clear water with clean gravel of appropriate size for spawning; juveniles migrate to ocean after spending 1-4 years in freshwater	Species observed in the project area

\*Status explanations:

Federal

E = listed as endangered under the Endangered Species Act (federal)  
T = listed as threatened under the Endangered Species Act (federal)  
PT = proposed threatened under the Endangered Species Act (federal)  
C = federal candidate species

State

SCS = special concern species

Source: Supplemental Natural Environmental Study, Caltrans, 2000

**Bolded text** is meant to emphasize species with federal protection.

### 4.9.3 Invasive Plant Species

Because FHWA has not yet developed a list of invasive plant species to be considered in the analysis of transportation projects, the California Department of Food and Agriculture (CDFA) list of invasive weeds was used for the analysis of invasive species at the project site. Table 4-18 identifies species from the list of invasive plants that were located within the Willits Bypass Project area. The CDFA assigns ratings to each species on its list, which is shown on Table 4-18, below. These ratings reflect CDFA's view of the statewide importance of the invasive species, the likelihood that eradication or control efforts would be successful, and the present distribution of the invasive species in the state. These ratings are guidelines that indicate the most appropriate action to take against an invasive plant species.

**Table 4-18. List of California Department of Food and Agriculture Noxious Weeds for the Willits Bypass Project**

Scientific Name <sup>(1)</sup>	Common Name	Pest Rating <sup>(2)</sup>	Plant Family
<i>Carduus pycnocephalus</i> (e)	Italian thistle	C	Asteraceae
<i>Centaurea calcitrapa</i> (e)	Purple star-thistle	B	Asteraceae
<i>C. solstitialis</i> (e)	Yellow star-thistle	C	Asteraceae
<i>Convolvulus arvensis</i> (e)	Bind weed	C	Convolvulaceae
<i>Cytisus scoparius</i> (e)	Scots broom	C	Fabaceae
<i>Genistis monspessulana</i> (e)	French broom	C	Fabaceae
<i>Hypericum perforatum</i> (e)	Klamath weed	C	Hypericaceae
<i>Senecio jacobaea</i> (e)	Tansy ragwort	B	Asteraceae
<i>Taeniatherum caput-medusae</i> (e)	Medusa head	C	Poaceae

Notes:

(1) Scientific names follow Hickman (1993); (e) = exotic, non-native species. [Hickman, J. C., ed. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California. 1,400 pp.]

(2) Pest rating based on California Department of Food and Agriculture (CDFA):

A = An organism of known economic importance subject to state (or commissioner when acting as a state agent) enforced action involving eradication, quarantine, containment, rejection, or other holding action.

B = An organism of known economic importance subject to: eradication, containment, control or other holding action at the discretion of the individual County Agricultural Commissioner or an organism of known economic importance subject to state-endorsed holding action and eradication only when found in a nursery.

C = An organism subject to no state-enforced action outside of nurseries except to retard spread or except to provide for pest cleanliness in nurseries.

#### **4.9.4 Wetlands and Other Waters of the United States**

Under Section 404 of the Clean Water Act the U.S. Army Corps of Engineers (ACOE) has authority to regulate activities that could discharge fill or dredge material, or otherwise adversely modify wetlands or other waters of the U.S. Any fill or adverse modifications of wetlands or other waters may require a permit from the ACOE prior to the start of work. Typically, the ACOE requires mitigation to offset unavoidable impacts to wetlands and other waters, in a manner that achieves the goal of no net loss of wetland acres or values.

The cumulative total of jurisdictional wetlands and other waters of the U.S., identified for the proposed project alternatives, consists of: 52.3 ha (129.1 ac) in Alternative C1T; 6.1 ha (15.1 ac) in Alternative E3; 21.1 ha (52.4 ac) in Alternative J1T; and 29.4 ha (72.8 ac) in Alternative LT. There are no wetlands or other waters present in the Designated Borrow Site. Table 5-18, in Chapter 5, provides a summary of jurisdictional wetlands and waters of the U.S.

### **4.10 Historic and Archaeological Resources**

#### **4.10.1 Ethnography and Archaeology**

Ethnographic and historic literature place the Little Lake Valley in the territory of the northern Pomo (Mitom). During the course of the consultation for this project, representatives of the Pomo (Sherwood Tribe) reiterated that their group maintains a personal interest in the cultural resources of the Willits Bypass study area.

Ethnographic research suggests that there are seven Pomo language families that are collectively part of the Hoka stock including Northern, Central, Eastern, Southern, Southwestern, Southeastern, and Northeastern. Traditionally, the Northern Pomo were comprised of various tribelets. Tribal boundaries evolved around the exploitation of specific resources and geographical areas. Often the resources were exploited seasonally on a yearly basis creating resource procurement boundaries without physical demarcations. Therefore, it is likely that tribal boundaries changed over time on the basis of environmental criteria.

As with many other California groups, the basic subsistence strategy of the Pomo was that of seasonal transhumance, where movements from one ecological zone to another were carried out on a seasonal rotation. The objective of this strategy was to be at the particular resource during its peak of productivity for ease of procurement; therefore,

a series of base camps among or adjacent to a desired resource were necessary for success of this strategy. Accordingly, this round of subsistence activities resulted in locating permanent villages along riverbanks on high ground and valley edges during winter months where a reliance on stored foods, supplemented with game, formed the subsistence base.

From mid-winter on, until the arrival of spring, salmon and steelhead trout ran in the Eel River and its major tributaries. The Pomo took salmon in large quantities with long forked spears with bone points and/or with hemp nets. In addition to anadromous species, the Pomo caught perch and “hardmouth” by a variety of methods. Hunting resumed on a larger scale throughout spring and summer months with the acquisition of deer being the primary emphasis. Other game animals included elk, antelope, Grey squirrel, ground squirrel, rabbit, wildcat, raccoon, panther, and bear. Hunting methods varied and included tracking game, driving it into enclosures, clubbing (bears), spearing (seal and sea lions on the coast), and using low brush fences, nets, snares, and basketry traps for birds.

In addition to hunting and fishing, the women collected a wide variety of plant foods. The more significant included spring berries, clover and a variety of other greens. In late spring and early summer, women gathered wild oats. The seeds of wild oats were presumably transported back to the village, where they were singed or parched and then ground in hopper mortars.

With the onset of summer, grasses and tarweed matured and were harvested along with manzanita berries, elderberries, strawberries, raspberries, thimbleberries, and blackberries. Hunting of deer and other small animals continued during this time as well. From June through August, the Mitom Pomo also made regular trips to the Mendocino County coast in order to harvest marine resources such as seaweed, shellfish, marine fishes, seals, sea lions, and salt. Although the Mitom use of the coast extended from south of Fort Bragg to an area somewhat south of Mendocino City, they typically camped at specific localities year after year, such as Three Chop Village and Buldam.

With the arrival of fall, acorns began to ripen and procurement activities centered on collecting and processing this resource. During this time the Pomo moved from the coast back into the interior hills and valleys. All of the larger oaks in the valley were individually owned. However, the oaks in the hills, like the large manzanita, were

considered to be communal property. Seven species of acorns were harvested, the preferred species being tanoak. Other nut species gathered during this time included hazelnuts and nuts from buckeye, gray, ponderosa, and sugar pine. Toyon, bay and madrone berries were the last fruit to be harvested and hunting of small game and birds, especially quail, intensified during the autumn months. Following the acorn harvest, there was an increase once again in salmon fishing and a drop-off in hunting. With the approach of winter, the Pomo returned to their permanent villages along the major riverbanks and valley edges, thus marking an end to the yearly cycle.

As a result of nearly 50 years of archaeological and historical research, a cultural sequence has begun to emerge for the north coast range that is reflective of over 9,000 years of hunter-gatherer life in the region. The primary cultural assemblages identified in the general region include the Augustine Pattern, Gunther Pattern, Berkeley Pattern, Borax Lake Pattern, and the Mostin Pattern. These distinct patterns appear to reflect cultural, technological and possibly environmental changes and influences. The ethnographic, linguistic, and archaeological records suggest a succession of population movements, the spread of outside influences, and the development of many distinctive cultural styles.

#### **4.10.2 History**

The first Euro-Americans who came to the Willits-Little Lake Valley area traveled through the area in the early 1850s on their way north to the new settlement of Eureka and the mines of the Trinity Mountains. The first permanent settlement of the Willits region is credited to Samuel, Martin and Henry Baechtel. Hiram Willits patented the land in this area in the late 1850s, and by the early 1860s a store had been established on his land. In 1865, when Willits took over the store, the new community had a post office, and he became the area's first postmaster. Having a post office made Willits' store an attraction for all the settlers in the region, and Willits ran a prosperous business there. The new village was named Willitsville.

Willitsville grew slowly during the 1860s and 1870s and by 1880 it had only about 100 residents. However, the settlement was the commercial center for the general region, offering three stores, a blacksmith shop, hotel, restaurant, two saloons, livery stable, drug store, and other retail establishments for the ranchers and their families for miles around. In 1888, a ballot measure for incorporation of the town was



approved by a sizable margin. The newly incorporated town changed its name to Willits.

Construction on the Northwestern Pacific Railroad (NWP) began in the late 1890s. The Southern Pacific Railroad took full control of the NWP in 1900 with the first train arriving in Willits in 1902. The impact of the arrival of the railroad on Willits was substantial and immediate. The town's population quickly rose to 700. Another railroad important to Willits was the California Western Railroad, which was operated by C. R. Johnson, the owner of the Union Lumber Company in Fort Bragg. The first California Western train pulled into Willits in 1912. The new railroad opened markets on the coast to Willits suppliers, and it increased commercial activity in the town. By 1916 Willits considered itself a major transportation hub of the region; it had become a "railroad town." The prosperity brought about a residential building boom. By 1920 the town's population had grown to about 2,000; however, limited timber and the economic difficulties of the Great Depression had a large impact on the local economy.

By 1926 the Northwestern Redwood Company closed its sawmill. The mill was taken over by the Irvine and Muir Company in 1928, but did not reopen until after World War II. Irvine and Muir Company was already having troubles with its two other sawmills in Muir Canyon and at Irmulco, both west of Willits. Civic and business leaders sought some relief from these setbacks by trying to encourage tourism. Attracting vacationers and sightseers had been one of the motives of the Northwestern Pacific Railroad owners in extending the railroad to Willits. A few guest ranches were started in the 1920s. Although insufficient to pull the regional economy out of its doldrums, these early efforts at promoting tourism laid the basis for future expansion in this economic sector.

**Figure 4-3. Skunk Train Depot in Willits**



Photo courtesy of Northwest Pacific Railroad Historical Society

The lumber industry struggled considerably to the extent that only two sawmills (both on the coast) were operating in Mendocino County in the 1930s. With the onset of World War II there was a sudden demand for building material to support the war effort, and Willits' sawmills were back in operation. The abandoned former Northwestern Redwood mill was re-opened after the war, and with the expanded use of logging trucks, new stands of timber became available for logging in the area. Fairly recently, tourism has expanded, possibly encouraged by the California Western Railroad's excursion runs between Fort Bragg and Willits featuring the Skunk Train steam locomotives. The Willits Skunk Train depot, which has been nominated for the National Register of Historic Places, is shown in Figure 4-3.

#### **4.10.3 Study Area and Surveys**

A cultural resource inventory was conducted in accordance with state and federal requirements. The study included the maximum right of way for five proposed alternatives including J1, L, C, E3, and TSM. The cultural resource inventory involved architectural and archaeological research and field surveys, which included notification and coordination with Native American groups, historical societies,

museums, and other interested parties. A total of 22 architectural properties and 25 archaeological sites were identified. The 22 architectural properties were formally evaluated for their potential eligibility to the National Register of Historic Places (NRHP) and for their qualifications as historic resources under CEQA. Six architectural properties were found to be potentially eligible for the NRHP and include the Martin Baechtel house, the Samuel Baechtel house, a section of the Northwestern Pacific Railroad, a section of the California Western Railroad, the potential Willits historic district (Block 3), and a tee pee burner located at 101 Redwood, Inc. The State Historic Preservation Officer concurred with the determinations on August 17, 2000 (Appendix I). In addition to the potentially eligible properties in the Study Area, 183 properties were treated under the Memorandum of Understanding for post-1945 Buildings and Pre-1945 Altered or Moved Buildings, updated to include buildings from 1945 to 1950.

The project area changed when three of the alternatives (J1, L, and C1; currently J1T, LT, and C1T) were truncated and the TSM alternative was eliminated. As a result, only portions of two of the architectural properties and only 21 of the archaeological sites are currently within or adjacent to the study area boundaries (Alternatives E3, J1T, LT, and C1T). Of the 25 archaeological sites identified originally, 18 are within and three are adjacent to the more recently defined study area. The archaeological sites within the study area include 4 historic, 10 prehistoric, and 4 sites with both prehistoric and historic components. The three sites adjacent to the study area include one prehistoric and two historic sites (CA-MEN-3036, CA-MEN-3037H, and CA-MEN-3035H). Of the six historic properties found to be eligible, only two are within the current study area boundaries including contributing elements of the California Western Railroad and the Northwestern Pacific Railroad. Chapter 5, Environmental Consequences provides additional information about these sites and the project's potential impacts. In addition to the potentially eligible properties in the study area, 113 properties were treated under the Memorandum of Understanding for post-1945 Buildings and Pre-1945 Altered or Moved Buildings, updated to include buildings from 1945 to 1950.

## **4.11 Hazardous Waste**

### **4.11.1 Potential Hazardous Waste Sites**

An Initial Site Assessment (ISA) was performed for the four bypass alternatives. The ISA documents the properties that have a potential for containing hazardous wastes. Based on the results of site reconnaissance, historical research, and regulatory file reviews, four properties were identified as having potential hazardous waste issue impacts to the alternatives. The properties that have potential impacts are discussed in Section 5 Environmental Consequences, and sites that received a high or medium ranking are shown on Map 22 and Table 4-19.

**Table 4-19. Hazardous Waste Spills and Potential Hazardous Waste Properties**

	SITE NAME	ADDRESS	CONTAMINANTS OF CONCERN	AFFECTED MEDIA	RANKING
<b>POTENTIAL HAZARDOUS WASTE PROPERTIES</b>					
<i>SOUTH SEGMENT</i>					
Alternatives C1T, E3, LT: No hazardous waste properties identified					
Alternative J1T:					
<b>Atlas MapLabel*</b>					
2	Microphor, Inc.	452 E. Hill Road	VOCs	Soil/Groundwater	Medium
3	T T Auto Wreckers Mini-Storage	227 N. Lenore Avenue	Petroleum Hydrocarbons/Metals	Unknown	Medium
4	Shuster's Transportation	750 E. Valley Street	Petroleum Hydrocarbons/Metals	Soil/Groundwater	Medium
5	Dept. Public Works Road Yard	751 Hearst Willits Road	Petroleum Hydrocarbons/Metals	Soil/Groundwater	High
<i>NORTH SEGMENT</i>					
Alternative C1T, E3, J1T, LT: No hazardous waste properties identified					
<b>HAZARDOUS WASTE SPILLS (January 1, 1994 to present)</b>					
<b>Atlas MapLabel*</b>					
A	U.S. 101	KP 82.17 / PM 51.0	Motor Oil/Hydraulic Oil/Diesel Fuel	Soil	NA
B	U.S. 101	KP 82.35 / PM 51.17	Diesel Fuel	Soil	NA
C	U.S. 101	KP 70.65 / PM 43.90	Diesel Fuel	Soil	NA
D	U.S. 101	KP 74.46 / PM 46.27 to KP 103.0 / PM 64.0	Diesel Fuel	Soil	NA
E	U.S. 101	KP 74.37 / PM 46.21	Diesel Fuel	Soil/Creek Bed	NA
F	U.S. 101	KP 78.05 / PM 48.5	Motor Oil/Diesel Fuel	Soil/Storm Drain	NA
G	U.S. 101	KP 81.98 / PM 50.94	Diesel Fuel	Pavement	NA

Notes:

\*See Volume II, Atlas Map 22 for locations 2, 3, 4, and 5.

Alt. = Alternative

NA = Not Applicable

VOCs = Volatile Organic Compounds

#### **4.11.2 Hazardous Waste Spills – U.S. 101**

The following seven hazardous waste spills occurred along U.S. 101 within the project limits during the period of January 1994 to the present. Spill information prior to 1994 is not available. The approximate locations of the spills are presented on Table 4-19 and shown in Volume II, Atlas Map 22.

- KP 81.98 (PM 50.94) – Approximately 75 to 95 liters (20 to 25 gal) of diesel was released to the roadway on May 9, 2000, when a truck jackknifed and its fuel tanks leaked onto the highway. The spill was confined to the roadway pavement. (Location G, Atlas Map 22)
- KP 74.37 (PM 46.21) - Approximately 40 liters (10 gal) of diesel fuel were released to the storm drain, roadbed and creek bed in June 1998. An approximate 15 m (50 ft) area was affected. (Location E, Atlas Map 22)
- KP 78.05 (PM 48.50) - Approximately 130 to 265 liters (35 to 70 gal) of motor oil/diesel were released to the roadway and a storm drain from two 415 liter (110 gal) truck fuel tanks on December 10, 1998. An area approximately 1.8 m (6 ft) wide by 23 m (75 ft) long was affected. (Location F, Atlas Map 22)
- KP 74.46 (PM 46.27)/KP 103.0 (PM 64.0) - A trail of approximately 150 liters (40 gal) of diesel fuel was noted in the slow lane of southbound U.S. 101 on September 3, 1997. (Location D, Atlas Map 22)
- KP 70.65 (PM 43.90) - Approximately 40 liters (10 gallons) of diesel fuel were released to soil located on the shoulder of U.S. 101 on July 9, 1997. Approximately 8 sq m (10 sq yd) of soil were affected. (Location C, Atlas Map 22)
- KP 82.35 (PM 51.17) – Approximately 50 liters (15 gal) of diesel were released to the highway and shoulder when a truck overturned on January 23, 1995. Approximately 10 sq m (12 sq yd) of diesel-impacted soil were removed. (Location B, Atlas Map 22)
- KP 82.17 (Post Mile [PM] 51.0) - Approximately 60 liters (15 gal) of mixed motor oil/hydraulic oil/diesel fuel were released to the shoulder of U.S.101 in November 1994. An approximate 4.5 sq m (50 sq ft) area was affected when a cement mixer overturned. (Location A, Atlas Map 22)

## **4.12 Visual Resources**

A description of the visual environment is necessary to determine and understand the extent of visual changes that may arise from implementation of any of the build alternatives.

Since the project area is large, there is not a single area or landform that defines visual quality in the Little Lake Valley. Visual quality varies depending on where in the project area visual quality is being assessed. To facilitate the visual impact assessment, the project area was divided into distinctive landscape assessment units (LAUs). The existing conditions within each LAU are described below and Map 23 shows the location of each. The resources discussed in Section 4.9, Biological Resources, and Section 4.4, Farmlands, may be consulted for supplementary information regarding the project area's visual setting. The following discussion focuses on the existing landscape, visually sensitive resources, and viewers in the study area.

### **4.12.1 South Valley Landscape Assessment Unit**

The South Valley Landscape Assessment Unit (LAU) is located at the southerly entrance of the Little Lake Valley. The area is comprised of ranches, homes on large acreage and a mobile home park. Morris Dam and Centennial Reservoir are located on the east side of U.S. 101. The Northwestern Pacific Railroad winds through the hills of this area. On the east side of U.S. 101, Haehl Creek starts its path north towards Outlet Creek. To the west of the highway, Baechtel Creek meanders through Muir Canyon.

Topography consists of gently rolling terrain. Hills in this area have a natural appearance, even though some contain manufactured slopes due to grading that occurred in the late 1960s for improvements to U.S. 101. Muir Canyon Road defines the northwest side and Baechtel and East Hill Roads define the north side of the South Valley LAU. Ridges, which ultimately climb up to the Forsythe Ridge, define the southern boundary of this LAU.

Grasslands cover most of this area with oak woodlands at the higher elevations. Rolling hills create pleasant curved lines. The highway generally follows natural curves of the hills. Commercial-type signage is found along U.S. 101 as one

approaches the City. Textures in the area are generally coarse as trees and buildings contrast with the rolling grassy hills.

#### **4.12.2 Miracle Mile Landscape Assessment Unit**

The Miracle Mile LAU is the southerly entrance to the City. The boundaries are the native vegetated ridges on the west, Muir Canyon Road on the south, the Northwestern Pacific Railroad on the east, and S.R. 20 on the north.

Much of the existing development along U.S. 101 is commercial. West of U.S. 101 the predominant land use is single-family residential. Public buildings in this LAU include Blosser Lane and Baechtel Grove Elementary Schools, Frank Howard Hospital and Willits Senior Citizens Center.

Along the highway the land is relatively flat, which is conducive to development. However, there is a series of smaller hills further to the west. Native vegetation includes native redwood, douglas fir, pine, oak, California bay and madrone trees. Smaller trees in the area are toyon and dogwood. Shrubs include native buckeye and ceanothus. Developed areas contain ornamental plants and non-native grasses.

#### **4.12.3 Historic District Landscape Assessment Unit**

The boundaries of the Historic District LAU include Sherwood Road on the north, S.R. 20 to the south, Baechtel Creek on the east, and the city limits on the west. This is the most populated LAU. Manmade elements dominate the area, with a mix of residential, commercial and industrial buildings, and a variety of architectural styles. Some of the older structures are Victorian, bungalow, and English Tudor. Newer structures are a variety of contemporary styles. Native trees line the major creeks. Ornamental plantings occur in the commercial and residential landscapes.

The visual character of this landscape assessment unit is dominated by low-density residential structures. Major areas of public assembly include: historic downtown, Skunk Train Depot, City Hall, Old Library, Community Center, Justice Center, Willits High School, rodeo grounds, Mendocino County Museum, County Public Works and City Corporation Yard.



#### **4.12.4 Brooktrails Landscape Assessment Unit**

Oil Well Hill is located on the north end of the Brooktrails LAU. The ridgeline, near the airport, is located to the east. S.R. 20 on the south and a ridgeline on the west define the other boundaries of this LAU.

Brooktrails started as a recreational community in the 1960s but has evolved into a community with many fulltime residents. Currently, approximately 1,250 residential lots are developed along with limited commercial uses and public facilities to support the development. The landform in this area is dominated by rolling to steep foothill slopes and dense vegetation. There is a variety of native species of mixed conifer, stately madrone trees and chaparral interplanted with ornamental plants introduced by homeowners.

#### **4.12.5 Little Lake Valley Landscape Assessment Unit**

The Little Lake Valley LAU is bound to the north by Oil Well Hill, to the east by the eastern ridges surrounding the valley, to the south by East Hill Road and to the west by the boundaries of the Miracle Mile, Historic District and Brooktrails LAUs. Land uses in this area are mainly agricultural and ranching. There are low-density residential units with small pockets of industry between East Valley Street and East Commercial Street. Most of the lowlands in the valley are in the 100-year floodplain.

Outlet Creek drains the entire valley to the northwest creating a rich riparian corridor. Marsh and wetlands cover the valley floor. The dominant landforms in this landscape assessment unit are grassland in the valley and, in the hills to the east, oak woodlands and mixed conifers.

### **4.13 Noise**

#### **4.13.1 Existing Noise Sensitive Land Uses**

Land use in the vicinity of Alternatives C1T, LT, and J1T varies from agricultural and rural uses to rural residential. Alternative J1T also includes suburban land uses near the vicinity of the little league ball fields. Land use along Alternative E3 includes pasture, woodlands and scattered suburban/rural residential uses. The potential for noise conflicts varies depending on the land uses surrounding each alternative. One school within the study area was evaluated for potential impacts. The Seventh Day

Adventist School (private) is located on Bray Road. Three parks and recreation areas are located within the study area: Lofling Little League and City Ball Fields, Recreation Grove Park, and Willits Rodeo Grounds. Other sensitive receptors in the project area include several mobile home parks and small subdivisions.

Map 24 shows the U.S. 101 study area and locations where existing noise levels were measured. The results of the short-term measurements indicate that existing noise levels at numerous residences adjacent to the existing U.S. 101 currently approach or exceed a peak hour  $L_{eq}(h)$ <sup>7</sup> of 67 dBA<sup>8</sup>. Noise levels at rural residences away from the main county roads and state highways are very low (38-50 dBA).

#### 4.14 Air Quality

The City of Willits is located in the North Coast Air Basin, which is under the jurisdiction of the Mendocino County Air Pollution Control District (District). Mendocino County meets all state and national ambient air standards except the state 24-hour standard for respirable particulate matter (PM<sub>10</sub>). In general, air quality standards are expressed as a measure of the amount of pollutant per unit of air. For example, particulate matter standards are expressed as the microgram of particulate matter per cubic meter of air ( $\mu\text{g} / \text{m}^3$ ). PM<sub>10</sub> refers to particles with an aerodynamic diameter of 10 microns or smaller. PM<sub>2.5</sub> refers to particles with an aerodynamic diameter of 2.5 microns or smaller.

The District maintains an air monitoring station for ozone, nitrogen oxides, carbon monoxide, and PM<sub>10</sub> in Willits. Since 1995, the District has had one exceedance of the state standard for PM<sub>10</sub>, which occurred in 1997. The District is in “attainment” for all other standards; that is, it is in conformance with National and California Ambient Air Quality Standards, which is discussed further in Chapter 5. Table 4-20 shows historical monitoring data for the city of Willits. Please note that Willits area is in an attainment or unclassified area for any federal criteria pollutant, therefore, transportation conformity does not apply.

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<sup>7</sup>  $L_{eq}(h)$ – “Sound level equivalent” averages the total acoustical energy over one hour. See Glossary.

<sup>8</sup> dBA – a noise measurement.

Mendocino County is in an Unclassified/Attainment area for PM<sub>10</sub>, therefore a PM<sub>10</sub> Hot Spot Analysis is not required. A Hot Spot Analysis concentrates on air quality impacts that may occur as a direct result of transportation facility operation and in the immediate vicinity of the facility. A Hot Spot Analysis is required if the project is located in a PM<sub>10</sub> nonattainment or maintenance area. The PM<sub>10</sub> Air Quality Summaries for the years 1993 through 1997 published by the Air Resources Board (ARB) and the Mendocino Air Quality Management District for the Willits PM<sub>10</sub> monitor (located at the Willits firehouse) showed that no monitored violations occurred at or near the project locations, and documented PM<sub>10</sub> concentrations are well below the standard. For example, ARB's 1997 data show a maximum 24-hour concentration of 66 ug/m<sup>3</sup>, approximately 44 percent of the federal standard.

**Table 4-20. Historical Air Pollution Data for the City of Willits**

<b>Historical Air Pollutant Data Summary Table for the City of Willits (1995-1997)</b>			
<b>Pollutant</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>
<i>Ozone</i> <sup>1</sup>	Units are in ppm	Units are in ppm	Units are in ppm
Maximum 1-Hour Concentration	0.062	0.058	0.065
Maximum 8-Hour Concentration	0.049	0.049	0.058
Days > State Standard of 0.09 ppm	0	0	0
Days > Federal Standard of 0.12 ppm	0	0	0
<i>Carbon Monoxide</i> <sup>1</sup>	Units are in ppm	Units are in ppm	Units are in ppm
Maximum 1-Hour Concentration	3	3	4.2
Maximum 8-Hour Concentration	2	1.8	3.04
Days > State Standard of 9.0 ppm	0	0	0
Days > Federal Standard of 9.0 ppm	0	0	0
<i>Particulate Matter (PM<sub>10</sub>)</i> <sup>2</sup>	Units are in µg/m <sup>3</sup>	Units are in µg/m <sup>3</sup>	Units are in µg/m <sup>3</sup>
Maximum 24 Hour Concentration	47	40	66
Maximum Annual Geometric Mean	16.4	17.5	17.8
Days > State Standard of 50 µg/m <sup>3</sup>	0	0	1
Days > Federal Standard of 150 µg/m <sup>3</sup>	0	0	0

Source: The 1999 California Almanac of Emissions & Air Quality. Published by The Air Resources Board, 1999.

Notes: 1 Monitoring station is located at 899 S Main Street in Willits

2 Monitoring station is located at the Firehouse in Willits

## 4.15 Section 4(f) Resources

Pursuant to Section 4(f) of the United States Department of Transportation Act (49 USC 303), the Secretary of Transportation shall not approve any project:

"...requiring the use of any publicly owned land from a public park, recreation area, wildlife and waterfowl refuge or national, state or local significance, or land of an historic site of national, State, or local significance (as determined by the federal, state or local officials having jurisdiction over the park, area, refuge, or site) only if - (1) there is no prudent and feasible alternative to the using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from such use."

The regulations implementing Section 4(f) state that "...any use of lands from a Section 4(f) property shall be evaluated early in the development of the action when alternatives to the proposed action are under study" (23 CFR 771.135(b)).

The review of resources that could incur Section 4(f) impacts resulted in the following list of park and recreation facilities (Table 4-21). These facilities are shown in Figure 5-14 Willits Long Range Park Facilities. As discussed in Section 5.8 Cultural Resources, there will be no use of significant historic resources by the project. The existence of eligible archaeological properties will not be known until further studies are conducted upon selection of a preferred alternative. (Refer to Section 5.8 for an explanation of eligibility).

**Table 4-21. Park and Recreation Facilities That Could Be Affected by the Project**

Name	Description
Lofling Little League and City Ball Fields	The facility consists of one little league field and two adult hard and softball fields. There are also dugouts, bleachers, a snack bar, restrooms and parking area. The city owns the property on which all three fields are located; however the little league facilities are owned by the Willits Little League. The fields are located on the south side of Commercial Street about 500 meters east of the Northwestern Pacific Rail Road and immediately west of Alternative J1.
Rodeo Grounds and Fair Grounds	The fair grounds are west of and adjacent to the Lofling ball fields. The rodeo grounds, which are inside the fair grounds, consist of a rodeo arena, stock pens and bleachers. The rodeo grounds host an annual Frontier Days celebration, which consists of a rodeo and parade during the week of July 4 <sup>th</sup> .
Redwood Empire Railroad History Project, Mendocino County Museum and ballfields	The 10-acre parcel is owned by the City of Willits and is zoned Public Facility. It is occupied by the Mendocino County Museum and the Roots of Motive Power-Antique Steam Logging Railroad Display, which includes an outdoor display of authentic, working antique steam-powered logging equipment. Future plans: the construction of an exhibition and learning center, and construction of a loop track to demonstrate steam logging equipment to the public.

Source: CalTrans 2001